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The Call of the Farm

BY J. G. SCHURMAN, PRESIDENT CORNELL UNIVERSITY

One evening not long ago I found myself at five o'clock among the hundreds of students who were leaving the campus by Central Avenue at the close of the day's work. Most, if not all, of them were from other colleges than the College of Agriculture. I could not but hear the conversation of students in my immediate neighborhood, and two students behind me were talking of their future. One said to the other, "Do you know what I would do if I had some capital? I would go out and buy one of these cheap New York farms and become a farmer. I believe there is no better opening to-day."

I often recall this conversation, and since the editor of THE COUNTRYMAN has asked me to furnish him an article for this issue, I have been considering some of the reasons which might justify the sentiments and the resolution which I have just described. Without much regard to order, I will set down some of the considerations which might serve to attract young men to the pursuit of farming in New York State.

In the first place, there is one general inducement which applies to farming in every country and every clime. There is no more healthful occupation. It is an outdoor life which keeps one in healthful touch with the beneficent powers of nature. One is always breathing fresh air and enjoying all the sunshine that comes. It is a farmer's own fault if he does not always drink pure water. If the food on the farmer's table is plain, it is as a rule plentiful and substantial. He enjoys also all the

gifts of nature—the open country, the arching sky, the changing scenes, seed time and harvest, the time of growth and the times of refreshing. These are the enormous advantages which the farmer enjoys in contrast with the inhabitants of our cities.

The farmer's life is one of the greatest independence. We have a complex civilization with infinite inter-relations and dependencies. Millions of our people, for example, are wage earners; but the wage earner is dependent on the employer not only for his wages, but for the opportunity to labor. The farmer is at once both capitalist and laborer. In this respect he is unique in the modern world. And this fact, along with the further fact that he does not live and move and act with the crowd, but settles his own problems for himself, encourages and develops the habit and practice of independence. A young man who values intellectual, moral, and economic independence might very reasonably look to the farm as a suitable arena for his career.

Thirdly, the farm offers attractions to-day to educated men which have never been operative at any other time. It is true that as farming never has been, so it never will be what is called a learned profession. It is characteristic of these learned professions that their devotees work with their brains and not with their hands. But so long as farming is farming it will call for abundance of work with hand and muscle. In the past, farming has consisted of these manual operations and of little besides.

In our time and country, however, we have in recent years come to recognize the indispensableness of combining brain work with hand work in farming. We have discovered that the industry must be re-vitalised by means of scientific knowledge. And in a comparatively short time the methods of farming, at any rate among the best farmers, have been reconstructed on the basis of scientific agriculture. For in America at any rate, we have come to a vivid realization of the fact that farming is an art which, having to do with animals and plants and soil and atmosphere, rests necessarily on principles and facts which are ascertained by the sciences of botany, zoology, geology, physics, and chemistry. It is true that the expert in these sciences may make a very poor farmer, but on the other hand a young man who has the practical gifts qualifying him to become a farmer will have an enormous advantage over his competitors if he knows something about these sciences and is able to apply what he knows to the business of tilling the soil or fruit growing or dairying or raising flocks and herds. If farming has not become a learned profession, it is no longer at least a place for ignorant drudgery, routine, and rule of thumb. Just as the modern farm unifies capital and labor, so it also combines manual labor and scientific activity. And in these respects it cannot fail to attract young men of education who are not afraid of soiling their hands with nature's dirt.

There is a fourth consideration which confirms the good sense of this Cornell student—presumably not from the College of Agriculture—in selecting for himself the career of a farmer in New York State. He was evidently looking at the matter largely from the financial point of view. It was his thought that farming in this State would in the future prove a reasonably good investment. And I believe there are good grounds for his conclusion. Perhaps men of his father's generation would have pronounced him entirely in error, for they belonged to a generation which witnessed a steady depreciation of land values in New York State. From 1870

to 1900, while the value of land steadily advanced in the west, it steadily declined in New York State. The past generation in New York State have thought, therefore, of land as a poor investment. They were spectators of its steady decline in value. Land on which in 1890 a loan of five thousand dollars might safely have been made, would not have justified in 1900 a loan of more than \$4448. The last generation of the nineteenth century, therefore, may be pardoned for their lack of faith in the land. Their experience made them pessimistic.

Conditions today are entirely different. There is no more free land in the west. The lands which were almost given away in Illinois, Iowa, and Nebraska, a generation ago are to-day selling for from one hundred to two hundred dollars an acre, and the change has come over the east as well as over the west. It is true that the rise in the value of farm lands during the last ten years has been much greater in the west than in the east, but there has been a considerable advance in the east also. And the Cornell student whose remarks I have quoted probably recognized that eastern land would in the future advance in value more than has hitherto been the case. And since I have heard his remark I have found confirmation of his faith in the fact that a number of farmers from the agricultural states of the west have been buying farms within a radius of thirty miles of Ithaca. These are practical farmers who have had experience in farming in the great agricultural states of the west. Their forecast undoubtedly is that the great rise in land values which they have witnessed there is likely in the near future to repeat itself in the State of New York. And the statistics of our State and Federal Departments of Agriculture furnish confirmation for this expectation.

Nothing could be more misleading than the assumption that land in an older state like New York is worn out and the crop returns constantly decreasing. So careful and reliable an expert as Professor Warren has shown that in

New York State the average yields of corn, oats, and hay are practically the same as they were forty years ago, while if the yield of potatoes has decreased, the yield of wheat has increased; so that on the whole the crop yields in this State average as high as formerly. Nor is it a fact merely that New York is holding its own; on the contrary there is marked improvement in recent years; the yields for the last ten years are much better than for the preceding ten years. Also Professor Warren shows that if you take not merely an average western state, but one of the best of them like Illinois, the crop yields per acre in New York State are nearly as good as they are in the best western state. Nor does this tell the whole story or the most important part of the story. For New York has one advantage over any and all of the western states which our farmers should never be allowed to forget. It has the best markets in the world at its own door. And from this circumstance it results that the values per acre of our crops are much above those of Illinois and still further above those of Iowa. Taking the five staple crops, corn, wheat, oats, potatoes, hay, Professor Warren shows that the average values per acre of these five staple crops have been \$19.42 in New York, \$16.76 in Illinois, and \$13.06 in Iowa—a very decided advance in favor of New York.

I think on the whole the Cornell student in Arts or Engineering whose remarks I have made the text of this discourse is amply justified by the facts in reaching the conclusions he expressed. It is only fair in conclusion to state ex-

plicitly that he also recognizes the financial conditions necessary to great success. "If I had capital," he said, "I would buy one of these New York farms and go into farming." Now I think it must be recognized that in the future farming, like any other business, will call for capital. Industry is not enough, science is not enough, good management is not enough. All these things are essential, but in addition capital will be required to secure the necessary area to make farming profitable. Farms are growing larger in this State and elsewhere, as is proved by the fact that you often see vacant farm houses on lands that are nevertheless cultivated. For certain kinds of farming considerable areas are necessary. Thus Professor Warren declares that his statistics show that general farms and dairy farms of from one hundred to two hundred acres are paying much better than smaller farms.

The return to the land is one of the most encouraging features of our time. I am delighted to hear young men of character and education in such large numbers planning to become farmers. I would not discourage them by pointing out that capital is as essential in this business as in any other business in the modern world. On the contrary, to those who have capital I would say the farm, if well selected and intelligently and capably worked, is a good investment. And to those who have no capital but their hands and brains, I would say these may yield as good results when applied to farming as when used in any other way.



THE NEW CORNELL GREENHOUSES.

FIRST SUMMER SCHOOL IN AGRICULTURE

By J. S. Brown, '13

FOR the first time the College of Agriculture at Cornell plans to hold a Summer School in Agriculture. The school lasts from July 6 to August 16th, 1911. The plans are about completed and the list of courses includes work in many departments of the College.

The object of the Summer School in Agriculture is to train persons who desire to teach agriculture, including nature-study and home economics, in the schools. The courses are open to other qualified persons aside from the teachers who wish to enter.

Instruction is given in three groups of courses, in any one of which a person may spend all of his time. The groups are:

Group 1—Agriculture. This covers the work in Soils, Agricultural Chemistry, Farm Crops, Animal Husbandry, Dairy Industry, Poultry Husbandry, Pomology, Farm Management, Entomology, Plant Pathology, and Meteorology. These subjects have been scheduled into a consecutive program and the instruction in each one of them will continue for approximately one week.

Group 2—Nature-Study and Elementary Agriculture. This covers the history, development, and pedagogics of the nature-study idea. The work will deal with school gardens, the collection, preparation and preser-

vation of materials, rural education, nature literature, and specific lessons in elementary agriculture and nature-study as outlined in the syllabus issued by the New York State Education Department for 1911-12.

Group 3—Home Economics. This group will cover the general subjects of food, human nutrition, and principles of household economy and sanitation.

The Summer School in Agriculture is distinct from the regular Summer Session in Cornell University. Any of the courses in the regular University Summer Session may be elected by qualified students registered in the Summer School in Agriculture. For a course thus elected a fee of \$15 will be charged; for more than one, \$25 will be charged.

There will be no examination for admission. Each person must satisfy the instructor in charge of any course that he is qualified to pursue the work.

Non-residents of New York State will be charged a tuition fee of \$25.

Academic credit will be allowed for the work in Nature-Study and Home Economics, as announced in connection with these courses, but no university credit will be given in Agriculture. The Agriculture, though, may be counted for entrance to the University on passing a special examination for that purpose.

THE COUNTRY ROADSIDE

By M. W. Evans, B. S. A., '06

IN the East dense hedge-rows of brush develop along many of the neglected road-sides. Usually, when the branches have begun to crowd into the roadway, the owner of the adjoining farm cuts down every one of the young trees, piles the brush, and later burns it. The roadside then presents an unsightly spectacle. The soil is burned bare of all

vegetation and is dotted with charred stumps. Weeds soon spring up among the stumps, and often within a few years there is a new border of brush growing again.

The accompanying illustrations show a row of trees through a farm in north-eastern Pennsylvania. Originally, where this row of trees is now growing, there was a mixture of young



maple, wild cherry, and black birch. About fifteen years ago, Mr. W. H. Evans, who was then the owner of the adjoining farm, cut out all of the cherry, most of the maple, and left some of the birch at about uniform distances apart. The young trees were carefully trimmed and headed at a height of about six or eight feet above the ground. During the next few years all brush sprouting up from stumps or from seeds was carefully mowed down. As a result of the continued mowing, the brush and weeds were gradually re-placed by grass.

On both sides of the road there is now a row of thrifty birches, which already cast a considerable amount of shade during the summer days. This is the only place of which the writer knows, that birch trees are used for shade or ornament along country roads. When the trees are in full leaf it is one of the most attractive rows of shade trees that he has ever seen. There are hundreds of miles of roads in the eastern states, now lined with undesirable hedgerows, which could be easily converted, with a small expenditure of labor, into as beautiful driveways as the one just described.



THE PLAYGROUND IN RURAL COMMUNITIES

[Abstract]

By L. H. Bailey

It is an old quotation that "variety is the spice of life." It seems to be a mental need that a person shall have change in interest and in occupation if he is to lead the most resourceful and effective life. It is an old saw that "all work and no play makes Jack a dull boy." It is just as true to put the statement the other way round and to say that all play and no work will make Jack at least an ineffective unit in the world, if it does not make him actually dull. At all events, it is true that all play and no work makes one a parasite. Therefore, I do not advise the introduction of play merely because it is play, but in large part because it is one element in the necessary diversity in life.

One's occupation and one's normal activities are really educational, whether they are consciously recognized as such or not. The nature of the outlook on the world is determined very largely by the character of the vocation and of the normal and necessary pursuits in life. The diversity in affairs, so long as one's interests are not merely dispersed, multiplies one's points of contact with the world, opens the mind, enlarges the horizon, stimulates the imagination, and, therefore, adds to one's resources.

There are two reactions to the conditions of life. One is the reaction of the person who would escape these conditions and be "free." As a matter of fact, there can be no real freedom so long as there are two or more persons in the world. The other reaction is to utilize the conditions of life as best we may for our happiness and growth. Of course, we are not to be satisfied with the conditions of life, else we make no progress; but we are to utilize the common occupations, the common play, the common diversion, and all the rest, as part in a scheme of human evolution.

The consciousness that diversity of interest and experience is essential to best development is well expressed in the rapidly extending habit of reading, in the extension of good sport of all kinds, in vacationing, in the enlargement of the means of entertainment and enjoyment, and in the shorter hours of labor for operatives. It is now necessary that we effectively organize these agencies of diversification.

The farmer is no exception to all this. He needs diversion as well as other persons, but the farmer's business comprises the round of his life. He lives on his farm. His philosophy of life grows directly out of his farm and out of his occupation. He does not need to be transported wholly away from his business, and he does not require exclusively the extraneous and the exotic. He is able largely to control his conditions and he works for himself, and he ought to develop his own type of life. The farmer is a part of his background.

New prospects must be set before the farming people, as before all other people. There is no one movement or innovation that will solve the rural problem, any more than it would solve the city problem. The problem of re-directing rural affairs is very complex. The new rural civilization must gradually evolve out of the old. It seems to be clear, however, that we should provide the farmer with only such innovations as are strong, native and significant. We must not attempt to make him a city man, nor to take him out of his background. We must be careful not to impose his improvement on him, but to let such improvement grow out of the situation.

I am convinced that we need to give much thought to plans for rural re-creation. By the word re-creation I mean what it actively and verbally

signifies—to create again. I do not mean merely entertainment or amusement or diversion. We need to create broadly new real interests, new enthusiasms, and new incentives. This is not a question of play or of sports alone, but rather of the refreshing of the life in general.

MEANS OF RURAL RE-CREATION

If we are to have better rural re-creation, we must first of all have better agriculture. Better technical farming and a more carefully organized farm plan, will give the farmer the time that he needs for other interests. In future he will be able to command at least one day a week, aside from Sunday, for reading, study, vacation, and other forms of re-creation. He may not be able to secure this day in every week of the year, but he ought to be able to average this much. The farmer's free time is to come not so much by the actual shortening of the hours of labor each day as by the organization of his business in such a way that he will have whole days to himself. This will evolve a different philosophy of the lessening of the hours of physical labor from that which obtains in the workingmen groups; and this factor must be clearly recognized by our social economists. The farmer will not only overcome the physical slavery of his business, but he will acquire a useful degree of real mastery over his materials and his situation.

Rural re-creation must be projected for the entire rural population. It must apply to the old as well as to the young, and to the young as well as to the old; therefore, a formal playground scheme, while exceedingly useful, is not in itself sufficient to provide all the re-creation that the open country needs.

The rural re-creation should be properly educational. It should have relation to life, and not be merely a patch applied to the social fabric. It should be more than mere relief from toil. I think it is possible to develop a re-creational movement that will be

educational at the same time that it will have all the needful elements of change, of reanimation, and of escape.

Rural re-creation ought not to be dominated by the towns, even though they are rural towns. Such enterprises should grow out of the finances and the consciousness of the open country. I should be glad to see the persons in the towns contribute their share to good plans of rural re-creation, but I should be sorry to see such plans supported by the townspeople. They should not be supported by merchants bankers, implement dealers, grain dealers, cattle buyers, or other traders. Rural re-creation should not come as a concession to farmers. The farmer has a right to such development, as a part of his normal scheme of life. It is our position to aid him to work it out.

Plans for rural re-creation should be manifestations, as far as possible, of real rural organizations, coming out of the grange, the church, the school, and other agencies already established. Some of the re-creational agencies that are already effective are the grange picnics, school picnics and field days, family reunions, harvest home festivals, old home weeks, old settlers' days, celebrations of anniversaries, and fairs (particularly the local fairs).

THE PLAYGROUND

It is as impossible to develop good re-creational features in the open country without an establishment for the purpose, as to develop a good school without a schoolhouse and a teacher, or a good religious movement without a church building and a pastor. Every community should have a permanent place set aside for re-creational enterprises. This should have the greatest connection with the out-of-doors. It should be primarily a grove; and I suggest that if there is no grove in a community that is adaptable to such purposes an area be planted definitely with this end in view. This grove should be provided with seats, picnic tables, and a speaking stand. Somewhere in connection

with it there should be a building, preferably one that would serve as a community hall. There should also be a regular playground, to be as consciously set aside for play and for games as a town-hall is set aside for public business or as a fair-ground is set aside for fairs. Perhaps the local fair-ground could be incorporated into the re-creational scheme.

We must distinguish between games and play; and also between athletics and play. We should, of course, develop many good games; but we specially need to have kinds of play in which all the young people may engage. Games are likely to be organized for the few rather than for the many; and athletics is the development of feats of skill on the part of a very few players.

It is essential that we make the most of all the common, native and usual kinds of play and games. No doubt something can be done to revive old-fashioned sports. The introduction of exotic and theatrical sports is undoubtedly desirable in many cases, but they should be projected on the background of common indigenous activities.

Play is worth the while when it is merely spontaneous and undirected; but it becomes very much more useful as well as enjoyable when it is definitely organized and supervised. The time is coming when we must have in each large rural community an expert in re-creation as we now have an expert in teaching, an expert in ministering, and as we shall soon have local experts in various phases of farming. These experts will organize what will be essentially experiment stations in social practice and social justice. They will introduce not only games and play, but also re-direct the music, the drama, and many other public expressions of the open country.

THE THING TO BE DESIRED

Many interesting suggestions are now being made for the more rapid evolution of country life. Certainly not all of them can be worked out in our lifetime. Perhaps many of the suggestions will be found, on experience, to be impracticable, but I am convinced there are two objects that need always to be kept in our vision; we must aim to diversify country life; and we must likewise aim to make it active.

THE MAN WHO WAS WELL CONTENT

By Jared Van Wagenen, Jr., '91

A long life time ago in the first quarter of the century behind us there lived on a farm in the hill country of eastern New York, a farmer named Paul, whose father had been one of the German Palatines who in the years before the Revolution played so large a part in the settlement of the Mohawk valley and its tributaries. Paul must have been born a few years before 1800 and grew up during the times when men still vividly remembered the horrors of Indian warfare; when a secure and substantial civilization was rapidly replacing the rigors of pioneer days, and when men never planted a

vine or tree with any assurance that they should live to eat the fruits thereof. So when Paul's father was carried out by his neighbors and his family stood about his grave in the little cemetery behind the Lutheran Church, Paul found himself established as the master of the farm. It was not one of the best farms—lying high up among the hills where the winters were long and cold—and yet it seemed to him a very pleasant place to live. He owned in fee simple 200 acres of land. In summer the white clouds floated over it, the sunshine lay warm on the dimpled bosom of the earth, and Paul watched his wheat fields be-

coming bronzed and golden; watched his cattle lazily wending their way to pasture, and later watched his corn growing ready for the harvest. When the sharp, bright frosty nights of October came, then under the light of the Hunter's Moon, he saw his orderly array of corn shocks like an army bivouacking under the stars. Then followed the husking, seized on by the young as an excuse for meeting and merriment, when the cider pitcher and the pumpkin pie crowned the board and when the lads were led to rustic chivalry and the maids to coyness and yielding. A little later when the days were shorter, when the fall plowing was finished and the frost began to grow bitter, there came from the barn, day after day, the noise of the flails that beat out the wheat. Then when the white blanket of winter covered all the land, the wheat, the money crop of the farm, would be drawn to market, at first 50 miles to Albany, later, after the completion of the Erie canal in 1825, twenty miles to the Mohawk valley. Then the long, mid-winter months came on, the snow deepened in the forests that clothed the hills, and the great wood pile day by day grew ever higher beside the kitchen door. Sometimes there came days when the wild northwest wind roared across the frozen land, when the great maples and pines rocked and moaned in the blast; and Paul sat snug and at peace beside the great kitchen fire-place plying the crackling flames with fuel, chatting and gossiping of many things and was well content. It was an era when old manners and by-gone customs still lingered. Paul, and his father before him were American citizens and voters, yet when Paul spoke in his family it was in the tongue of the valley of the Rhine. Doubtless, he was by our standards an ignorant man. I fear he planted his potatoes by the moon. I fear that he treated his cattle for hollow-horn, and wolf-in-the-tail. Yet, after all, he could not find fault with book-farming for the very idea was strange to his vision. But every year he summer-

fallowed as much land as he could handle and abundant crops of wheat rewarded this most careful husbandry.

This was still in the golden age of home spun. The farm establishment was supported almost entirely from within its own resources. Every country neighborhood was an empire in itself. From Albany by team came a few articles of luxury; fine cloth, pottery, molasses, a little sugar, spices, codfish, salt and often, if we must confess it, liquor; also such implements and tools as were beyond the arts of the village blacksmith, and the local craftsman. But these articles were only a very small part of the whole. Every year Paul's little field of flax glowed as blue as the summer skies above it. It would have to be hand pulled, retted in the autumn dews, later hatched, and then beneath the hands of his household grew into skeins and into shirts, dresses, table linen, and grain bags. The wool from Paul's little flock of sheep went first to the tiny local carding mill, and then all winter beside the kitchen fire the spindle sang or snarled and the needles gleamed and clicked as the yarn grew into socks and mittens or the loom thacked as it drove home the wool into thick and honest woolen cloth.

One cow furnished the winter supply of beef, and the hide together with several calf skins went first to the local tannery to be made into leather, and later was made into the family boots and shoes by the itinerant cobbler who wrought beside the fire of his employer. To a degree of which we can hardly conceive today, the farm and its affairs were maintained within itself.

There was sugar from the maples, wheat, corn, beans, buckwheat and many other crops from the field and garden. Garments, bedding and twine were derived from the farm flocks and herds. Beef, veal, mutton and pork came from the same source; and finally, even to the last, the very coffin was made with the long plane and the saw by the local undertaker out of broad pine boards sawed on the

farm. The problem of agriculture in that time was to make one farm minister to every need of the family almost without external aid. The farm-house and the fields around it was an industrial world, and of such an organization Paul was the patriarchal head.

So the friendly years came and went. Each spring brought to the farm the miracle of reviving life; every autumn the bounteousness of the summer was garnered into the barns.

Paul was sprung of a virile, prolific race and as the years slipped by and his locks grew thinner and whiter than of old, it came to pass that he sat at the head of his table and looked down along a mighty line of sons which, in number, if not in name were rivals of Jacob's tribe of old.

Now, when Paul saw these stalwart sons that fairly thronged the house, he, like a wise sire, considered much about the career of these boys and how they should come in future to be an honor to him and to his race. So he planned that when each son was of age and according to the custom of his time, took for a wife a daughter of the surrounding farms, to buy for him a hundred acres of land, paying \$1000.00 on the purchase price and bidding the boy make good for the rest. So one by one, these boys went out into life and as they went, the father made the same provision for each except to young Paul who, because he bore his father's name, he gave the old homestead which was to be the new world cradle of his race.

Such was Paul's life work and doubtless it was a very humble one. Certainly his career had in it nothing of the spectacular, but out of that 200 acres of land he had reared to manhood a mighty family, and when at last he died, an old man full of days and content, it was a goodly company of bronzed, blond-bearded farmers' sons who stood about his grave. They had themselves come from that soil and out of it by primitive and slow methods had been wrung the beginnings of a patrimony for each. Un-

questionably, when he had witnessed his sons established, each on his own 100 acres of the green earth, he had rejoiced as a man who had been permitted to see many blessings and to whom the fates had shown favor.

Once you could have driven down that stretch of country road curving between the hills and found these sons of Paul; a whole community of men bearing one common name. None of them ever achieved any great success, none ever were known beyond the circling hills that sheltered them. They were merely patient, plodding men who believed little in the new agriculture, who farmed much as their father had, who paid their honest debt and looked out on life with kindly eyes and were well content.

Some of Paul's sons are old now. Some have followed the sire on his long Pilgrimage. Few of them have sons who will take up the work where they lay it down. His grandsons are doing almost everything in the world except the work to which they were born by inheritance and tradition, and these farms that 75 years ago meant so much to Paul are today being sold to the alien and to the stranger. And if Paul had lived today I fear he would not have planned for those sons the life work that he did. He would have expected them to migrate and to find a place for themselves in the city. He would have given them to become a cog in the wheels of a corporation. He would have dreamed that some day they should rise to be assistant foremen and smoke cigars instead of a pipe and live in one side of a rented house on the avenue and buy their milk in a bottle and their potatoes in a paper bag forgetting how their ancestors walked between their plow handles and turned over the brown earth in the spring sunshine.

But I feel that the world is poorer today, because there are not more men who plan as Paul did when he lived with that great family of lusty sons around him, three-quarters of a century ago up in the hill country of eastern New York.

PLANT-BREEDING FOR COLLEGE STUDENTS DURING THE SUMMER VACATION

By Arthur W. Gilbert

Assistant Professor of Plant-Breeding, New York State College of Agriculture

PLANT improvement by breeding is as much a farm problem now as the kind and quantity of fertilizers or the amount of cultivation. Every farmer, and especially every college-bred farmer, should give these matters very careful consideration. Maximum crops of the best quality are produced only after a careful study of the many factors involved in the growth of plants. Heredity is one of the most important of these factors. High producing strains of plants are as desirable and necessary as high producing strains of animals. It is much easier and requires less time and expense to breed pedigreed plants and the returns are as great as with pedigreed animals. Here is an opportunity for the college man who lives on a farm during the summer to lay the foundation for highly bred strains of farm crops, garden crops or fruits. The final results may not be reached for several years but a good beginning can be made.

First of all, study the crops already growing on the farm and determine wherein they may be improved.

Study the market also to become acquainted with what the public demands. Find out wherein these crops may be improved to meet that market. If the crop is badly diseased or is susceptible to disease it would be desirable also to produce a disease resistant strain. One should become familiar with as many varieties as possible to determine if the desirable qualities demanded are not already combined in an existing variety.

There are two courses open to bring about improvement: hybridization and selection. If a sufficient number of desirable qualities do not exist in one variety it may be that two varieties contain them. In this case it is obvious that a hybrid between the two varieties should be made in an attempt to combine the good qualities of each. Perhaps later on combination with a third variety will be necessary.

Many hybrids may be made in the course of a summer. Whenever two plants are crossed, one should have in mind a definite ideal, unless the crossing is done simply as a matter of practice.



GRADUATE STUDENTS OF PLANT-BREEDING STUDYING PLANTS IN THE FIELD.

Selection will probably be a more usable tool than hybridization for the student to use during the summer to bring about plant improvement. The flowering season of many plants will have passed when summer comes, and hybridization will be impossible.

In many plants, a new combination of characters is not what is desired as much as an intensification of the characters which already exist, for example, breeding for increase in yield.

Selection means "breeding from the best." It is first necessary to find the best before it can be used for breeding purposes. I think we may say that the principal task or opportunity which the student may have in improving farm crops is to search out and find the best plants. These plants are often the beginning of new varieties.

As a field practice, single type selection, that is, picking out good plants here and there and testing their producing power separately, is replacing the so-called mass-selection in which a whole field is considered collectively.

Scrutinize the timothy, oat and wheat fields for the best plants. If a good timothy plant is found, dig it up and transplant it to a breeding patch where it may produce seed without being cut down. Go thru the grain fields just before harvest and select out the plants with largest and best heads, if their other characters are good, and save the seed of each separately to be tested out. Do the same with tomato or other garden plants. Save the seed separately of the best plants.

Many observing growers of cereals and other plants have originated varieties by finding occasionally extra good plants and propagating from them. For example, many of our well known races of wheat have originated in this way. The Fultz wheat, which is a very popular and excellent race grown extensively in the eastern states was found in 1862, in a field of Lancaster Red by a Mr. Abraham Fultz, of Pennsylvania.

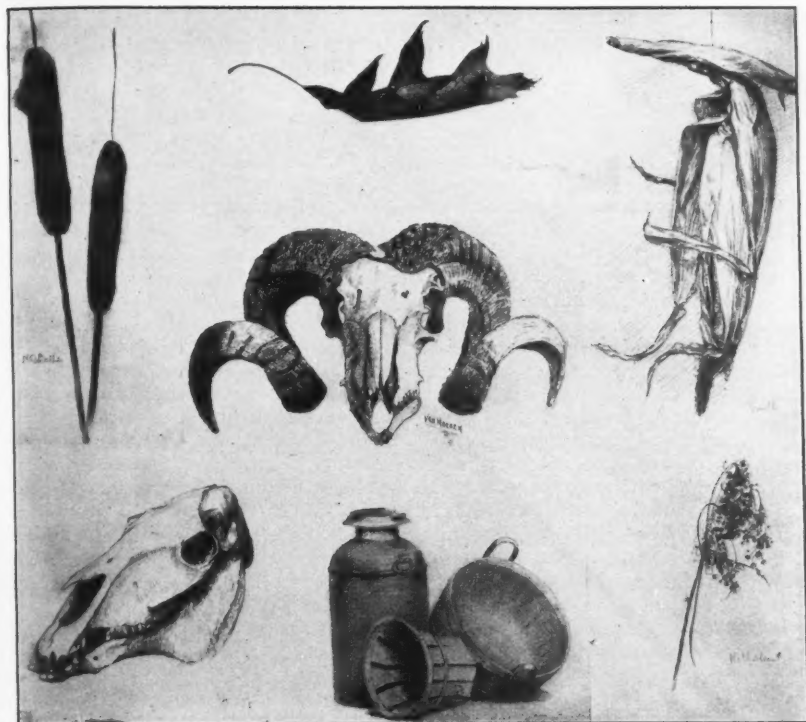
Some beautiful heads of smoother wheat attracted his attention and they were saved and the seeds planted by themselves. These produced the wheat later named the Fultz. The Tappahannock wheat which, in 1882, was considered to be a valuable race, was found in 1854, by a Mr. Boughton of Essex County, Virginia. The account of its discovery as given in the Report of the Department of Agriculture for 1872, is as follows: "He noticed in his field a bunch of wheat of such growth as to attract his attention * * *. At harvest he found it to be a white wheat, at least two weeks earlier than the surrounding red wheat." Gold Coin wheat, a seedling sport, differing from the hybrid Mediterranean in being bald and white, was found by Mr. Ira W. Green, of New York, in a field of that race and improved by selection. In the next five years the type was fixed and increased in yield about ten per cent.

To produce varieties in this way requires skill in recognizing the valuable plants and patience in testing them out. Such varieties when produced, however, often remain permanent for a long time and may play a very important part in the plant production of any region.

When Burbank was a young man at the age of 17, he began the breeding of plants. One of the first successes which he enjoyed was his origin of the famous Burbank variety of potatoes.

Another young man who has been very successful in breeding work is Mr. Howard N. Brewer, of Connecticut. In 1907, when about 20 years of age, he won the Orange Judd Corn Contest, a \$100.00 prize for the best and most profitable acre of corn grown in the United States, the yield for that year on an average being 121 1/2 bushels of shelled corn per acre. In 1908, a surveyed and measured acre, husked and weighed under the supervision of town officials, yielded 133 1/3 bushels of shelled corn.

There are great possibilities for young men in this line. Start the work this summer.



STUDENT WORK IN THE EXHIBIT.

ART EXHIBITION OF THE DEPARTMENT OF DRAWING

A VERY pleasing exhibition of the work of the drawing department was given in May by W. C. Baker, Assistant Professor of Drawing. The exhibition included everything from the simplest pencil sketches to some very fine oil paintings by Mr. Baker, himself.

Among the pictures deserving special note were some pen and ink sketches by G. N. Wolcott, F. A. C. Smith, and H. C. Sands; a white owl by Miss Earl, and a chipmunk by M. C. Butts, both in watercolor; and some pencil sketches by Miss Badger, C. T. Gregory, and A. L. Deane. The collection of paintings and sketches in

oil, water color, and black and white by Mr. Baker attracted much attention. Many of the sketches and water colors were made in the Catskill Mountains while some of the best paintings were of European scenes. A very lifelike portrait of an old French fisherman in oil color was taken from life in a small French fishing village, where Mr. Baker was studying.

The Department of Drawing has become more popular each year since its introduction three years ago, and is doing splendid work in training the students to observe when on the farm or in the laboratory.

HIGH SCHOOL AGRICULTURE IN NEW YORK STATE

By F. W. Howe

Specialist in Agricultural Education, N. Y. S. Department of Education

FOR a few years previous to September, 1910, an elective course in agriculture was offered in certain public high schools of New York. A specially trained teacher was not required. The course was general in content and method, the recitations were given but three times per week, and academic credit toward graduation was allowed to the extent of only three counts in a total of seventy-two required for the academic certificate.

Beginning with the school year, 1910-11, a new secondary "syllabus in agriculture" went into operation, and a new amendment to the Education Law of the State, which displaced the course just mentioned. The new syllabus provided for seven distinct subdivisions of the agricultural course, and the law made provision for specially encouraging the high schools to secure trained teachers of the subject, while permission was also continued to teach the new courses for academic credits as before.

For administrative reasons, this amendment called for a sharp distinction between the two ways of teaching the subject of agriculture and others closely related to it. This distinction has come to be recognized in the official use of the terms "academic" and "vocational" agriculture. The former term is now definitely applied to the teaching of the subject by the best teacher available in a given school, largely as a cultural or general-information elective in the regular academic or college preparatory course. Each of the half-year courses is allowed two and one-half "counts" and the one full-year course (in dairying), five counts, aggregating a total allowance of twenty counts which may be earned by election out of the required seventy-two.

With the inauguration of the "vocational" courses in agriculture the required work in this and closely related subjects was increased to thirty counts, equivalent to five-twelfths of the student's time, and the instruction is required to be given by specially approved teachers. The ten additional counts are made up outside the courses outlined in the agricultural syllabus in a way that is explained later.

It will thus be seen that twenty units of the agricultural work are common to both the "academic" and the "vocational" courses, so far as the general scope of subject-matter is concerned; but in the "vocational" courses the work of both teacher and student is expected to be much more intensive and thorough than in the "academic" courses, and also to be more particularly adapted to the agricultural and industrial interests of the local community. In both types of instruction the work is not subject to uniform state examinations but the credits are determined on inspection and approval by the State Education Department through its Division of Vocational Schools.

The general nature of the special agricultural courses outlined in the Secondary Syllabus may now be briefly described. Each of the first six of these courses runs for half the school year. The following outline indicates the general nature of the work planned:

SYLLABUS COURSES IN AGRICULTURE

Cereal and Forage Crops

(30 exercises)

Soils—water holding capacity, drainage, mulches; fertilizer materials, mixing, and test experiments.

Grasses and legumes—special study of alfalfa.

Small grains—clover seed analysis and valuation, seed testing; cereal spikelets, inflorescence of oats, rye, wheat, barley; wheat, flour—gluten content; treating oats for smut; grain drills and their operation; plant-to-row testing of oats and other grains.

Corn—various types and characteristics, field study, field selection and storage of seed; minute study of kernel, seedling and plant structure; corn smut; corn judging; ear-to-row tests.

Farm weeds—recognition, control; spraying of mustard.

Crop rotations.

Poultry Husbandry

Recitations—feeding; breeds, vitality, breeding; killing, picking, marketing; diseases, parasites, vices, sanitation; construction of poultry houses; incubation, natural and artificial; brooding, natural and artificial; feeding, and fattening chicks; capons, broilers; turkeys, ducks, and geese.

Laboratory exercises (16)—study of egg and meat types, parts of the fowl; killing and picking; determining age, sex, and vitality; mixing poultry feeds; study of the egg; structure, marketing, preserving; planning and constructing poultry houses, coops, feed hoppers.

Animal Husbandry

(14 exercises)

General—habits of farm animals; teeth.

Horses—types, soundness, age; feeding, measuring, weighing, scoring; harness and harnessing; plan of horse barn.

Sheep—types and breeds, feeding, classification of wools, plan of sheep barn.

Swine—types, breeds, feeding.

Potato Growing

(26 exercises)

Structure of plant and tuber; related plants; mulches, drainage,

fertilizers; seed cutting, sprouting; potato blight, beetles, scab control; potato-growing machinery, cost of production, plan in crop rotation; hill test and selection, potato judging; time to market, quality, shrinkage.

Fruit Growing

(19 exercises)

General—seedlings, cuttings, layers budding, grafting, planting; drainage, fertilizer materials and mixing; spraying machinery; San Jose scale; fruit exhibits.

Peach—fruit and leaf buds; leaf curl, pruning.

Cherry—fruit and leaf buds.

Grape and bush fruits—pruning.

Apple Growing

(19 exercises)

Fruit buds, budding, grafting, planting, pruning, cross pollination; codling moth, scab, San Jose scale; spraying, machinery, Bordeaux mixture, lime and sulphur; drainage, fertilizers; varieties, judging, box packing, exhibits.

Dairy Husbandry

(Full year, 36 exercises)

Cows—breeds, age, measuring, scoring, control of kicking, dehorning.

Feeding—hays, grains; nutritive ratio, forming balanced ration; measuring grain, hay, silage.

Milk—rough analysis, keeping quality, bacteria, pasteurization; action of rennet and pepsin; cost of production.

Milk products—cream, butter, cottage cheese; preparation of starters.

Exact determinations—Babcock test of whole milk, skimmed milk, cream, milk ash, acidity; use of Quevenne lactometer; weight of carcass by measurements.

Plan of dairy barn.

As previously stated, the foregoing courses are allowed a total credit of twenty counts in both the "academic" and "vocational" plan of study. To meet the additional requirements of the vocational type of instruction, ten

counts more are provided for as follows:

Special Work in Vocational Courses

Five units are included in a year's work in mechanical drawing, plain carpentry and joinery, and simple farm mechanics, including some acquaintance with the use, adjustment, and repair of farm machinery and the operation of gasoline engines. The drawing exercises occur three times per week (forty-five minute periods), and the "shop work" in two double periods.

The remaining five units may be chosen from any one of these lines: (1) A half-year course in physics ($2\frac{1}{2}$ counts), and a half-year course in chemistry ($2\frac{1}{2}$ counts), taught with special reference to the application of their fundamental laws to farm practice and household arts; or the two subjects may be taught together throughout a whole year. (This course is to be required of all agricultural students who have not had the regular academic courses in physics and chemistry.) (2) A course in general biology (5 counts) so presented as to introduce the most common plants and animals concerned in agriculture or commerce that can be utilized for study and illustration, in preference to those having no economic value or harmfulness. In this work the course outlined in the Secondary Syllabus in Biology is to be used, but only for general guidance as to the order of development of the subject. It must be supplemented quite largely with special bulletins on plants and animals of economic interest and by approved laboratory work. (3) A course of educational "home project" work on the farm or in the home, outlined and guided by the Department and the local schools, and so developed as to be educationally equivalent to a five-count study course. This is designated as "Agriculture VIII." All work outlined in this paragraph is to be taught only by the special teacher accredited for agriculture or home economics, in order that the vocational motive and charac-

ter of the work may be beyond question.

A considerable latitude is allowed to any school that is arranging to do its first elective work in academic agriculture. The privilege of selecting the particular course which most fully meets the initial interest of students and community, often serves a useful purpose in developing a later demand for the regular vocational courses under a special teacher. It is believed that this result follows the study of the several differentiated lines of instruction covered in the various courses much more frequently than would be the case if a one-year general book course in agriculture was given first in the high school. The best place for such a general course would seem to be in the seventh and eighth grades, thus developing an intelligent interest in the subject which will often carry pupils over into the high school in order to take the more specialized instruction there offered.

All the agricultural courses as outlined here and in the Secondary Syllabus, are to be supplemented by textbooks, reference books, bulletins, farm papers, essays, excursions, and demonstrations, to the full extent of the ability of class and teacher. Naturally this supplementary and connective work will be more varied, thorough, and effective under the direction of the special teacher in the vocational courses than can be expected from an academic teacher without agricultural experience or training. But academic teachers of the subject are encouraged to do all the work outlined as thoroughly as their experience and preparation will permit.

To assist teachers in developing improved plans of teaching the various topics included in the agricultural courses, and to encourage a more effective and significant correlation between the industrial and the so-called cultural subjects of high school study, the Education Department purposes to send as regularly as possible to the

schools interested a series of outlines, suggestive questions, and other aids in promoting a better understanding of the aims and values of vocational instruction. To all high schools teaching agriculture the Department also recommends the purchase and use of special reference books in agriculture. These are known respectively as the "Fifty-Dollar List," containing twenty-five selected books, and the "Hundred-Dollar List," including thirty-two additional books.

State Aid for Vocational Courses in Agriculture

In the New York system of agricultural education here sketched in its larger outlines, the direct aid of the State is given to the local high school, both by special supervision and advice and by financial aid to districts that establish the vocational courses. The requirements are, in brief: (1) that a special teacher approved by the Education Department shall give his time exclusively to vocational instruction; (2) that not less than twenty-five students giving five-twelfths of their time to such studies shall be enrolled in the vocational course; (3)

that certain provisions shall be made for needed rooms, apparatus, and books; (4) that an advisory agricultural board of five members shall be appointed; and (5) that the vocational course and its necessary requirements shall be authorized at a public district meeting.

When a course is so organized in any union school or high school, the State will pay into the district treasury five hundred dollars annually if one special teacher is employed, and two hundred dollars for each additional teacher engaged in vocational instruction for thirty-eight weeks during the school year. A regular high school certificate of graduation, sanctioned by the Education Department, is granted to students who complete four years of such vocational study; and a "junior" certificate to those who complete two years' work beyond the six years of elementary school training.

This scheme of state-aided high school instruction in vocational agriculture and related subjects is in experimental development in a few schools this year and will probably be in full operation in the fall of 1911.

THE NEW AGRICULTURAL GIG

By W. H. Hook, '12

Captain Agricultural Crew

Intercollege rowing in Cornell University began in the spring of 1906. At that time Agriculture, Law, Arts, Architecture, Mechanical Engineering, Civil Engineering, and Veterinary were represented by crews. The Veterinary College has since dropped out. Practice on the machines in those days began but a few weeks before the race and was continued until the contest was five or six days off. Then for this short time the various crews were crowded into the Varsity boat-house. Conditions were very congested as can easily be imagined. A portion of the North boat room was screened off by a piece of canvas to serve as a dressing room for all the crews. It became at

the rowing hour a greater chaos of clothing than the ordinary kitchen closet, while the act of dressing was an unwritten science. No baths were provided.

The gigs were good crafts but limited to two. The oars, however, were of course the old and abused implements discarded by the Varsity. Little coaching, if any, was given the crews. Practice apparently aimed to develop ability to stay in the boat and dip the oar occasionally.

The resulting race, as might be expected, was a very amusing spectacle; not exactly a burlesque because the men were seriously trying to do their best. On the other hand it was far



AGRICULTURAL CREW IN PRACTICE.

from a systematized well organized effort. Some say that it amounted to little more than a "crab" catching contest, with the course an organized fishing ground.

Now the intercollege crews have a fine new concrete and plaster boat house of their own, with two large dressing rooms, shower baths of hot and cold water on the second floor; with a large boat-room below containing two gigs, the gift of the Cornell Athletic Association to the Intercollege Rowing Association. Moreover, the good spirits among the faculty and students decided that we Ag's ought to have a "gig" of our own to encourage such a healthful sport. So, in the year 1910, a subscription was started and enough money raised to guarantee the venture of building the boat. It was to be ready for us at the Decoration Day Regatta last year, but owing to delays in supplies was not finished. However, our crew of that year in appreciation of the good work started, went ahead and won the race just the same.

This season, we are using the new boat and new oars daily. My, but it is a grand equipment. Hiawatha's birch bark canoe never had stronger

lines or balanced better than the new gig. She goes through the water as straight and true as an ocean liner. We, of the crew, realize with overwhelming force, that *we have the boat and the oars*, so now "its up to us."

At the present writing, May 15th, all good omens and the lack of bad ones point toward another victory for Agriculture. The new men by practice on the water since about April 15, under two intercollege coaches, have got beyond the point where the gig feels the size of a cigar-box and the oar appears to have the dimensions and weight of a telephone pole. Some of the men have developed joints at the elbows and wrists while others who really had these joints before find new articulations for them of which they never dreamed. Strange to say, the new men have also discovered that all the movements of which their backs and waists are capable, are not necessary in the boat. They find they shouldn't flopp up and down like the ear of a fox hound in the run; it's a systematic movement, like the pricking up and laying back of horses' ears or the inverted motion of a pendulum.

The old men have their sea-legs on again to the extent that with the aid

of the new men, they can walk away from most anything including Prof. Wing's launch which he kindly loaned us to aid in coaching our crew.

But with all the satisfaction and good training derived from the new boat and oars, there comes the humiliating thought that they are not paid for, and we who use it feel this fact keenly. There is yet \$350.00 to be raised before we can use it without embarrassment. Toward the initial cost of \$600.00 our Dean with his usual interest in outdoor sports gave \$25.00. The rest of the faculty generously contributed \$66.50, the student body raised \$130.00, while the class of 1912 donated \$10.00 from their treasury. As yet none of the alumni outside of the faculty and the class of 1910 have showed their interest in this most beneficial sport of

the Agricultural College by contributions towards our new gig.

The Mechanical Engineering College which is now building a gig to be paid for by subscription has far outstripped us in the amount raised although they started but last fall. This advantage is greatly due to the help of the alumni, one individual giving at the start \$100.00 and promising \$165.00 more if the college could raise an equal amount by the close of this term.

Perhaps our alumni and others have not had the opportunity presented to them. Let this not be the excuse any longer. The writer as a member of the crew and chairman of the "Gig Fund Committee" will be glad to acknowledge the receipt of any amount however small or LARGE. Who will lend a hand?



The Cornell Countryman

ALBERT H. WHITE, Editor

EDWIN P. SMITH - - - Alumni Notes Editor

H. ERROL COFFIN - - - Artistic Editor

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} Assistant Managers

JUNE, 1911

Your Activity

In the initial number of THE CORNELL COUNTRYMAN, Professor G. F. Warren, who in his student days was the first editor-in-chief, set forth the following policy for the paper: "To keep the former students in touch with each other and with the college, and to present the advances in agriculture." The continued success of the COUNTRYMAN in the seven succeeding years is, we believe, sufficient proof of the soundness of the policy to warrant its continuance in the future. For this reason special emphasis will be given next year to the former student notes and to the various activities of the college which should be of vital interest to our readers.

As the new board takes up the work of the COUNTRYMAN for next year, we wish to take this opportunity to express our gratitude to the retiring board for work well done, and for their

assistance in getting the paper started for next year. In this we believe we voice the sentiment of the entire student body of the College. By maintaining the paper merely as a "floating proposition" another year has been ended free from debt. So long as this policy is continued, namely that of the work being done, for neither remuneration nor credit, but merely for the interests of the paper, the future of the COUNTRYMAN is assured.

With the start of another year, we want you as a student of the College of Agriculture to feel more than ever that the COUNTRYMAN is your activity and that from you must come ideas and suggestions if your paper is to reach its highest development. Drop into the office and talk things over; develop that same "Ag" spirit which has again brought that trophy cup for the athletic series back into our camp. Your help will mean the difference to the COUNTRYMAN between keeping pace, and setting the pace.

The Trophy Room

Judging by the keen interest which the students this year have shown toward the new Trophy Room, its innovation has proven a success, and its future maintenance is assured. Pictures of the various athletic teams and musical clubs of the college well fill the room, prize banners adorn the walls, and if next year proves as successful as the present one, a new shelf will have to be added to the cup cabinet. The illustrations, pp. 351 and 353, show the various cups won this year which are as follows:

1. Sweepstakes Trophy—presented by the National Dairy Club Association; won 1908, Iowa State College;



3. 1909, University of Nebraska; 1910, Cornell.

2. Silver Cup—Intercollege Cross Country Race.

3. Morrison W. C. Debate Trophy—won '07-'08, General Agriculture; '08-'09, Dairy Industry; '09-'10, Poultry Husbandry; '10-'11, General Agriculture.

4. Silver Cup—Awarded by the American Jersey Cattle Club annually for first prize in judging Jerseys at the National Dairy Show. The College winning it three times may keep the cup permanently. Won, 1908, University of Nebraska; 1909, Cornell; 1910, Cornell.

5. Hoard's Dairyman Trophy—awarded for first place at the National Dairy Show. Won, 1908, Iowa State College; 1909, University of Nebraska 1910, Cornell.

6. Silver Cup—Intercollege Regatta presented by John H. Barr, '89. Won '06, Civil Engineering; '07, Civil Engineering; '08, Arts; '09, Civil Engineering; '10 and '11, Agriculture.

7. Silver Cup representing the style of milk cans in use on the Island of Guernsey—Presented annually by the American Guernsey Cattle Club at the National Dairy Show. Won '08, Iowa; '09, Minnesota Univ.; '10, Cornell.





CAMPUS NOTES

FIRST IN COLLEGE SEASON FOR 1910-11

The completion of the Intercollege crew races and the Intercollege baseball schedule give the College of Agriculture the championship of the University in athletics. Mechanical Engineering comes second and Civil Engineering third. The totals:

College of Agriculture.....	58
Mechanical Engineering.....	41
Civil Engineering.....	38
Law.....	30½
Arts.....	23
Veterinary.....	18½
Architecture.....	13

Agriculture won both of the final sports of the season, crew and baseball. The points from crew were distributed as follows: Agriculture, 10; Law, 7; Arts, 5; and Mechanical Engineering, Civil Engineering, and Architecture all tied, each receiving 2½ points.

* * *

It has become necessary to take up the old school-garden because the auditorium is to occupy its site.

A new school-garden is being made just to the east of the Animal Husbandry building. The eastern half is already planted. The western half is to occupy the site now taken by the Girls' Tennis Court; but this will not be planted until another year, when the Tennis Court can be removed to the neighborhood of the new Home Economics building.

It is possible that a rural school-house may be placed just at the north

of this school-garden and centering on the central walk running to the south.

* * *

Among those elected to Sigma Xi at the annual meeting held on April 29, were the following from this college: Prof. G. W. Cavanaugh, Prof. H. E. Ross, W. C. Beal, G. J. Bouyoucos, H. B. Frost, C. N. Jensen, M. M. McCool, and W. R. Thompson.

* * *

Bulletin 295, on the Agricultural Survey of Tompkins County was recently issued. The purpose of this survey was to study the Farm Management.

* * *

The report of the Florida meeting of the American Pomological Society, which was held in February, 1911, has just come from the press. It is edited by the secretary of the Society, Professor Craig, and comprises a volume of about 300 pages. This volume is largely dedicated to the citrus fruit interests of the country.

Coöperative field tests are in progress with the National Sweet Pea Society. Experiments are being carried on at Ithaca, and at Garden City, L. I. The first report of this work is now in press.

* * *

The Department of Horticulture is coöperating the American Gladiolus Society which was formed last year, in making a study of the varieties of gladioli.

Prof. Wing responded to a toast at the annual banquet of the American Jersey Cattle Club held in New York City, May 3.

* * *

The Animal Husbandry Department reports a considerable addition to livestock in the horse department. Two pure bred Percheron mares have been purchased and six or eight colts have arrived at the college barns.

* * *

The First Educational Scoring Contest for Butter, Cheese and Milk was held May 25. The contest was for the

tion was held here, April 26 and 27. Professors Fippin, Duggar, and Whetzel of the College of Agriculture, and Mr. H. L. Watson, of Newtown, Pa., spoke at the meeting. In addition, there was an extensive exhibit of photographs showing different diseases of the crop, and specimens of diseased roots.

* * *

Mr. Manning, heating engineer from the state architects office, was here on May 3, looking over the ground and plans of the new Agricultural buildings.



1910-1911 COUNTRYMAN BOARD

G. M. Butler,	D. G. Woolf,	A. H. White,	W. de S. Wilson,
B. P. Jones,	C. F. Ribsam,	S. G. Judd,	W. H. Fries,
			W. G. Stephenson

benefit of former winter-course students in Dairy Industry. Samples of milk products sent in from all parts of the state were scored and criticized by the judges of the contest.

* * *

The Crown Cork and Seal Co., has loaned to the Dairy Department a new capping machine for putting caps on milk bottles. Metal caps which entirely cover the tops of the bottles and which are much more sanitary than the old-fashioned pasteboard caps, are used.

* * *

The annual meeting of the New York State Ginseng Growers' Associa-

tion was held here, April 26 and 27. Professors Fippin, Duggar, and Whetzel of the College of Agriculture, and Mr. H. L. Watson, of Newtown, Pa., spoke at the meeting. In addition, there was an extensive exhibit of photographs showing different diseases of the crop, and specimens of diseased roots.

* * *

Mr. Manning, heating engineer from the state architects office, was here on May 3, looking over the ground and plans of the new Agricultural buildings.

* * *

The Poultry Association was addressed by Prof. Rogers on Tuesday evening, April 25th. The lecture was on his recent visit to Western poultry farms.

* * *

The following games have been played in the intercollege baseball league: Ag. 6—Grads. 5; Law 9—Ag. 3; Ag. 12—Arts 2; Ag. 12—C.E. 2 Ag. 9—Vet. 3; Ag. 9—M. E. 0; Ag. 18—Architecture 2.

An article, by Professor Ross, recently appeared in the *American Agriculturist* on "The Use of Hand Separators on the Farm."

* * *

Professor Stocking recently served in New York, as member of a commission to consider the establishment of bacterial standards for market milk.

* * *

The Dairy Department is testing the accuracy of a new method of determining the number of bacteria in milk. The new method is very simple and if accurate will be much used. It is based on the decolorizing action of bacteria on methylene blue. Milk and methylene blue are mixed and kept at a constant temperature until the color disappears from the blue. The

number of bacteria in the milk is directly proportional to the time it takes for decolorization to take place.

* * *

Professor Ross has prepared a bulletin on "The Cell Content of Cow's Milk," which covers the results of two years' work.

* * *

Prof. Gilbert spoke before the Grange at Hall, N. Y., on May 13.

* * *

C. O. Dalrymple, '12, is at Newtown, Penn., studying to become a ginseng specialist.

* * *

R. S. Nanz, '12, is assistant in Plant Pathology at the Iowa Experiment Station.

SUMMER DEPARTMENTAL PLANS.

Summer Plans for the Department of Entomology

The Department of Entomology is planning work this summer along many different lines. A study will be made of onion thrips at Williamson, N. Y. The work of the Bethany-Batavia Fellowship at Batavia will also be carried on. In Ithaca, work will be done on the life history of an apple pest and war will be waged on the elm leaf beetle on the elms of the campus. Another important line of work is the coöperative spraying experiments on the control of the red bug throughout the state. The experiments on the external parasites of poultry, which are being carried on in conjunction with the Poultry Department will also be of interest to many.

* * *

Summer Plans for the Department of Pomology

The work of planting the Pomology grounds will be continued. The apples and pears were planted last spring. Plans for the remaining fruits are already completed, and most of these fruits will be planted this fall.

The new grounds offer excellent opportunities for experimental work

and the Department is starting experiments on:

- (a) Stocks for different fruits and varieties.
- (b) The value of pedigree stock.
- (c) Methods of pruning.

The Department of Pomology, in coöperation with the Department of Plant Pathology, is conducting a spraying experiment to control the anthracnose of raspberries.

* * *

Summer Plans for the Department of Horticulture

The field work in the Department of Horticulture will consist of coöperative experiments with growers of special vegetable crops on muck lands in western New York. Two sets of experiments have already been established on celery, onions, and lettuce at South Lima, N. Y., and Batavia, N. Y. In addition a vegetable survey of the state that was begun last year will be completed. A greenhouse survey will also be made, investigating the amount of capital invested in greenhouse equipment throughout the state. This survey will also include the area of glass, the crop grown, the methods of culture and the type of

labor employed. These many activities of this department will undoubtedly be of great benefit to the horticulturists of the state.

* * *

Summer Plans for the Department of Farm Management

This department will put together in bulletin form the data already gathered in the survey of Livingston County. If money is available, another survey will be made of some dairy section in the state. The purpose of these surveys will be to determine what factors go with success in farming.

* * *

Summer Plans for the Department of Soil Technology

The Department of Soil Technology will make a large number of important experiments on the experimental farms this summer. The following tests will be made:

- (1) To determine the influence of certain plants on the presence of nitrates in the soil.
- (2) To determine the relation of the form of soil nitrogen to its utilization by plants.
- (3) To determine the loss of calcium and other bases in drainage water from soils.
- (4) To determine the relative effectiveness of calcium compounds and the degree of fineness of ground limestone in correcting the lack of basicity in soils.
- (5) To determine the methods of manuring for hay crops.

A soil survey of Jefferson County will be made this summer in coöperation with the United States Department of Agriculture.

* * *

Summer Plans for the Department of Plant Pathology

Prof. Donald Reddick, of the Plant Pathology Department, is supervising

this summer, the work of numerous field laboratories throughout the State. Dr. Errett Wallace is in charge of the laboratory at Albion, where Mr. Evans is assisting him in determining the fungicidal value of iron sulphate. Mr. C. P. Smith, of the Utah Agricultural College, is also working with Dr. Wallace on peach and apple diseases. Messrs. C. N. Jensen and F. M. Blodgett, Hermanfrascch Fellows, are at work in field stations; Mr. Jensen, with C. D. Scherbakoff, '11, are studying potato diseases at Atlanta, N. Y., and Mr. Blodgett is investigating the effect of sulphur on foliage.

Mr. V. B. Stewart, with Messrs. Massey and Weiner, of Wabash College, is at work on nursery diseases in nurseries at Seneca Castle and at Honeoye Falls.

Messrs. George Osner and R. W. Brawker, Bethany—Batavia Fellows, are studying apple pests at the Batavia Station. At the Romulus Grape Station, Chas. T. Gregory, Assistant in Plant Pathology, is located.

L. R. Hessler, Byron Fellow, is at Byron Center, combatting the apple canker. At Williamstown, J. C. Jaggar, Willis P. Rogers Fellow, is at work on onion and celery diseases. At Hudson, P. J. Anderson is investigating cement dust injury to foliage and fruit.

J. Rosenbaum, is collaborating with the United States Bureau of Plant Industry in the control of ginseng diseases.

R. A. Jehle, Plant Pathologist for the town of Newfane, is also working with the Plant Pathology Department in studying peach diseases. At New Paltz, W. H. Rankin, John Davy Fellow, is working on chestnut bark disease.

GENERAL AGRICULTURAL NEWS

WE are glad to announce the advent of a new magazine to our agricultural press. "*The Progressive Eastern Fruitgrower*," now published at Rochester, N. Y., has a worthy purpose, as it intends to "boost" eastern fruit, and further coöperation among fruit growers. Dean Bailey, and Prof. C. S. Wilson of the Department of Pomology are members of the advisory board of editors.

* * *

NEW YORK EDUCATIONAL MONTHLY JUDGING OF DAIRY PRODUCTS

The fourth year of the New York Educational Monthly Judging of Dairy Products will begin the last week of May. In the previous three years there were only six monthly scorings. This year there will be a monthly judging through the entire year of milk, cream, butter and cheese.

In butter there will be two classes, creamery and dairy. This is the first year that there has been a separate class for dairy butter. There will also be a class for milk and cream. Each product will be scored and the following analyses made; butter for moisture and salt, cheese for moisture and butter-fat, and milk and cream for butter-fat, total solids, acid and number of bacteria.

The markets are constantly calling for a more uniform and higher quality of dairy products. Very often difficulties are experienced in the care of milk and cream or in the manufacture of butter and cheese that might easily be overcome by a change in the methods. It is the aim of the New York Educational Judging of Dairy Products to not only offer suggestions for improvement but to aid the dairymen to be better judges of their products.

Just now there is a great deal of worry on the part of the farmer who is making butter and also the creamery man because of the enforcement of the federal ruling regarding the moisture

content of the butter. A number of dairymen have been taken to task because their butter contained too much moisture. When this regulation was first passed the creamery men shipping to the large butter centers were the ones to suffer. Now the federal government is inspecting farm made butter. To a certain extent it is a good thing for the farmer because it will bring him to a more careful study of his butter and probably a greater overrun will result. The time is coming in the near future when every butter-maker must use a moisture test. The past has proved that the moisture analysis of the butter at our scorings are very helpful to the maker who uses a test as a check on his own analysis; and also to the person not having a moisture determining outfit, for it gives him an idea as to the amount of water in his butter.

The products will be judged by members of our staff assisted by outside judges furnished by the New York State Department of Agriculture. These men, as far as possible, will be gotten from the markets, for our ideals must be the market ideals. After the products have been judged, the reports concerning the handling or the manufacture will be examined and suggestions for improvements made.

Many dairymen send samples of their products to us for examination. Probably there are others who would like to have us inspect their goods. There will be no better time to send these articles of the dairy to us than on the appointed date of the Educational Monthly Judging of Dairy Products. It is not necessary that a person enter with the idea of winning a diploma of merit only, although we hope that the larger per cent of the entries will be for the entire year; but he may send a sample to just as many of the monthly judgments as he chooses. The advantage of making a regular entry, even, though it may be for only a few months, is that we will have an opportunity to send him a report

blank which calls for the information that we need in order to offer helpful suggestions.

We are planning to have a "round-up" meeting during Farmers' Week at Cornell University next winter. At this meeting all persons who have sent one sample or more to the New York Educational Monthly Judging of Dairy Products will be given the privilege of examining the products with the judges. At this time there will be conferences for the dairymen interested in milk and cream, butter and cheese.

* * *

THE 1910 YEARBOOK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

The seventeenth volume of the Yearbook, (1910), will soon be issued by the U. S. Department of Agriculture. In appearance and make-up it differs but little from its predecessors; it contains 28 articles, 49 full page illustrations, of which eight are colored, and 31 text figures.

The Department's appreciation of the service of the late Senator Jonathan Prentiss Dolliver rendered to agriculture during his public career is expressed in the selection of a portrait of him as a frontispiece.

The Fourteenth Annual Report of the Secretary, for the fiscal year ended June 30, 1910, occupies the first 156 pages and gives the "general report of the operations of the Department," which, under the law, must form a part of the volume. This report, supplemented by the statistical matter found in the appendix, gives a more complete and comprehensive summary of agricultural conditions in the United States than can be found in any other single publication.

The next 320 pages, divided between 28 articles contributed by many members of the scientific force of the Department, contain data upon many of the important questions now prominent in the public eye, and equally vital to the agricultural and urban population both as producers and

consumers of the food stuff of the nation.

The importance of the forests to the residents of the country and the prominence of that subject in Department work is reflected in four papers, namely, The Management of Second-Growth Sprout Forest, Progress in Saving Forest Waste, Fire Prevention and Control on the National Forests, and Injuries to Forests and Forest Products by Roundheaded Borers.

Settlers in many parts of the West will be interested in the two papers relating to The Agricultural Duty of Water, and Mountain Snowfall Observations and Evaporation Investigations in the United States, while everyone will be interested in the two articles, one on the Progress and Present Status of the Good Roads Movement in the United States, and the other, describing the Use of Bituminous Dust Preventives and Road Binders.

Those engaged in Animal Husbandry will find the discussion of Some of the More Important Ticks of the United States most timely, and the paper on the Eradication of Cattle Tuberculosis in the District of Columbia will not only engage the attention of those directly benefitted by that accomplishment, but will encourage other communities to renewed efforts for greater success in the same line.

That the general farmer, the fruit grower, the trucker, and the grower of special crops hold a deservedly large space in the thought and activities of the Department is demonstrated by the nine papers on Supply and Wages of Farm Labor; Nitrogen-gathering Plants; Insect Enemies of Tobacco in the United States; Increased Yields of Corn from Hybrid Seed; The Utilization of Crop Plants in Paper Making; Coöperation in the Handling and Marketing of Fruit; Precooling of Fruit; Camphor Cultivation in the United States; and the illustrated article on Promising New Fruits of the Year, 1910.

The Department does not leave the farm product as soon as produced, but

as its destiny is consumption, articles dealing with the proper, best, and most economical use of farm products as food for man, are furnished. Cheese and Other Substitutes for Meat in the Diet; The Respiration Calorimeter and the Results of Experiments with it; and The Game Market of Today, are separately treated.

As showing what the Department is doing to further progressiveness in the farming communities, and to encourage rural education and the instruction of agricultural courses in country schools, the article entitled Community Work in the Rural High School will be of interest and value.

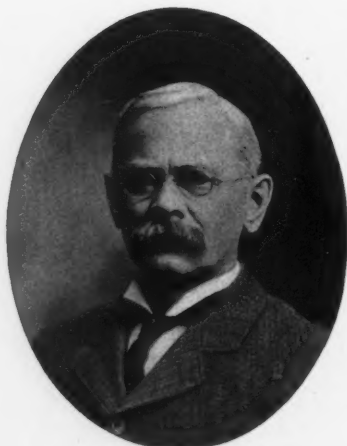
Among the articles of peculiar interest to dwellers in the larger cities are

one on The Value of the Shellfish Industry and the Protection of Oysters from Sewage Contamination, and one on The Inspection of Imported Food and Drug Products.

The Migratory Movement of Birds in Relation to the Weather, Review of Weather Conditions of the Year, 1910, and Seedtime and Harvest; statistics as to the organization and work of the United States Department of Agriculture, the State Departments, and the Agricultural Experiment Stations in the States, complete the new Year-book.

The volume is distributed principally by Senators, Representatives, and Delegates in Congress, the Department's quota being reserved for its volunteer correspondents.

FORMER STUDENTS



John Henry Comstock, B. S. '74

'74, B. S.—Altho not a graduate of the Agricultural College, Prof. Comstock is an alumnus of the University and has been connected with our faculty longer than any other active member. We feel certain that our readers will be deeply interested in a brief sketch of his life, a knowledge of

which should be an inspiration to everyone.

He was born at Jaynesville, Wis., Feb. 24, 1849. The following year his mother was left a widow, and also as a result of financial mismanagement, penniless. As a boy of ten he commenced working for his board and clothes, with the privilege of attending school in winter, at Scriba, Oswego Co., N. Y. Five years later he commenced working as cook on sailing vessels on the Great Lakes during summers and attending school winters. Another winter was spent in the district school at Scriba, one at Mexico, N. Y., and two winters in Falley Seminary at Fulton.

At Falley Seminary, Mr. Comstock commenced the study of Botany, this being continued during his spare moments while on the lakes. While looking for a certain work on Botany in Buffalo, he ran across a copy of "Harris' Insects Injurious to Vegetation," and after much deliberation, exchanged a good part of a month's wages for the book. "Before seeing this volume, he had never given the

study of insects a serious thought, but as soon as he became aware thru its pages that there was such a science as Entomology, he became fully convinced that he would like to devote his life to it."

As Cornell was planning the establishment of a chair of Entomology, Mr. Comstock entered here and was graduated with the class of '74. He worked with the masons on the University buildings; helped to build McGraw Hall, the building in which he afterwards taught for many years. He also worked as assistant to Dr. Wilder in the anatomical laboratory, as janitor, as master of the chimes and in various other ways, thus earning his way thru college.

In 1873, Mr. Comstock was placed in charge of the new department of Entomology, with the title of instructor of Entomology, and lecturer on Invertebrate Zoology. Three years later he was promoted to the rank of Assistant Professor. In the summer of 1878, he worked in the south studying the cotton worm and a year later was appointed United States Entomologist. He discharged the duties of this office so well that two years later he retired with a world-wide reputation. Returning to Cornell he was appointed Professor of Entomology and Invertebrate Zoology, a position he still holds.

In 1878, Prof. Comstock was married to Miss Anna Botsford of Otto, N. Y., a former student at Cornell.

For many years Mrs. Comstock was associated with her husband in his scientific studies being joint author with him of several works. She learned wood-engraving in order to make the illustrations for the "Manual for the Study of Insects," and she acquired such skill that she was made a member of the Society of American Wood-Engravers, membership in which was limited to a small number of the leading wood-engravers. Her work as an engraver was interrupted by the taking up of the work in nature-study in which she is now engaged.

Prof. Comstock is the author of numerous works on both economic and systematic Entomology well known to all students of the subject. He is author of "The Manual for the Study of Insects," which is a standard textbook used in most agricultural colleges; a volume on Insect Life that is widely used in secondary schools; and with Mrs. Comstock a volume on the Butterflies of the Eastern United States. He has just completed a work on Spiders and Allied Animals, soon to be published.

Prof. Comstock has always taken a keen personal interest in his students and his influence in this respect is immeasurable. A self-supported student himself, he has made it possible for many other students to complete their course. In nearly every state in the Union, besides many foreign countries, there are Entomologists of prominence who owe much of their success to training received under Prof. Comstock.

His studies have already resulted in untold benefit to the agricultural interests of the country, and will probably be fully as important to future generations. A self-made man in every sense of the term, Prof. Comstock stands today as the leading Entomologist of the world.

* * *

'81, A.B.—"Mr. Romeyn B. Hough has brought out a handy pocket manual which he calls a 'Leaf Key to the Trees of the Northern States and Canada.' The booklet is of such dimensions that it can be carried very easily in one's pocket, its dimensions being $4\frac{1}{2}$ by 6 inches, and not over a quarter of an inch in thickness. In about thirty pages all of the common native trees from the Rocky Mountains eastward, and north of the latitude of North Carolina, are briefly characterized by means of keys which refer principally to their leaves. With this in hand the tyro ought to find no difficulty in finding the name of any native tree in the region named." —*Science*. Mr. Hough's address is Lowville, N. Y.

'04, B.S.A.—Walter S. Brown is now located at Corvallis, Oregon, and is president of the Corvallis Orchard Company.

'05, F. E.—William C. Shepard, Assistant Forester of the Pennsylvania Railroad, has removed from Altoona to Philadelphia, with headquarters at the Broad street station.

'07, Sp.—Jay A. Miller was married on March 22d, to Miss Dora M. Saxton at Wayland, N. Y. After an eastern trip, Mr. and Mrs. Miller will reside on a farm near Dansville.

'08, W. A.—Ross C. Mead is now managing the home farm at Newark, Valley, N. Y. He is carrying on general farming with special attention to dairying.

'09, B. S. A.—A. W. Sweeton now has supervision of the sale of milk in the city of Stamford, Conn.

'09, W. A.—Wm. C. Perry is at present located in Virginia with W. J. Toussaint, W. H., '08, who has charge of a 3000 acre, tract of land in that state.

'10, B. S. A.—L. E. Johnston has accepted a position on the Sheffield Farms, Vergennes, Conn. (.)

'11, B. S. A.—David C. Vann, who left college sometime in March, is superintendent of the Letchworth Village Farm at Thiells, Rockland Co., N. Y.

'11, B. S. A.—Thomas E. Elder was married on May 1st to Miss Grace E. Holton at Lyndonville, Vt. "Tommy's" many friends here extend their best wishes to both he and Mrs. Elder. We understand he has charge of the grounds at the Northfield School for the summer and will teach agriculture at this school the coming year. Mr. and Mrs. Elder will be at home after Sept. 15th at Mt. Hermon, Mass.

'10, B. S. A.—B. D. Gilbert, is now employed as assistant in the Soil Survey being made this summer in Jefferson County.

'06, Sp.—On April 24th, 1911, a son was born to Mr. and Mrs. Roy F. Wilcox, of Council Bluffs, Ia.

'11, B. S. A.—W. O. Strong has accepted a position as teacher of agriculture and manual training in the Thorn High School at Millbrook, N. Y.

'11, Sp.—W. H. Holloway is now in charge of the production of sanitary milk on the Georgetown farm of the Connecticut Agricultural College. In Stamford, the milk from their farm sells for fifteen cents, and the cream at one dollar per quart.

'11, W. P.—Leland M. Baum is now manager of the poultry department on the Brook-Hill Farm, Genesee Depot, Wis.

'11, W. A.—E. R. Zimmer was here recently making arrangements to enter as a Special next fall.

'11, W. D.—Wm. F. Huff has been engaged as Assistant Buttermaker in the Dairy Department of the University of Illinois.

'11, W. D.—R. L. Washburn is now managing a new milk plant for the citizens of Bradford, Pa. The purpose of the plant is to supply the city with pure milk. Paper milk bottles will be used exclusively.

'12, Ex.—J. C. Faure has received a special appointment from the U. S. Bureau of Entomology. He will spend the summer combatting insects injurious to citrous fruits, in California.

'11 Ex.—F. H. Lacy has been teaching agriculture in the High School at Tully, N. Y., the present year. He has been very successful in developing an agricultural course there, and has been engaged for another year.

'04, Sp.—H. E. Haslett is farm manager on the farm of Ed. Harding at Plainfield, N. J.

'11, Sp.—Samuel R. Heffron has just taken a position under the U. S. Department of Plant Industry, on the experimental farm at New London, O.

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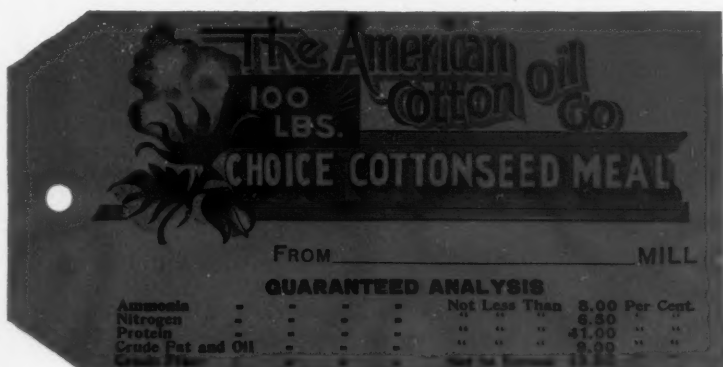
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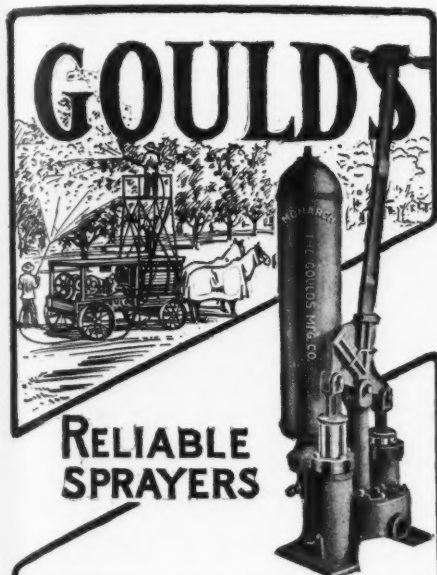
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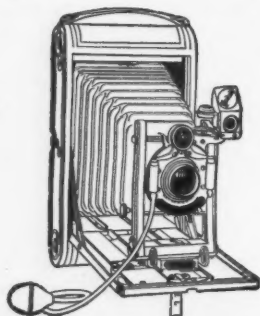
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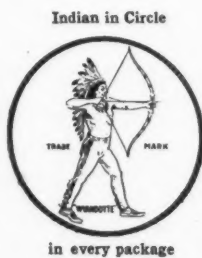
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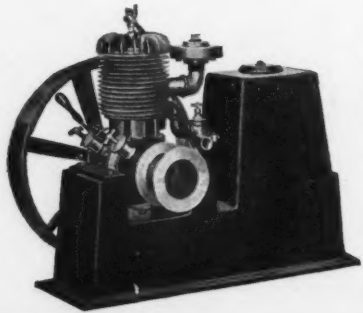
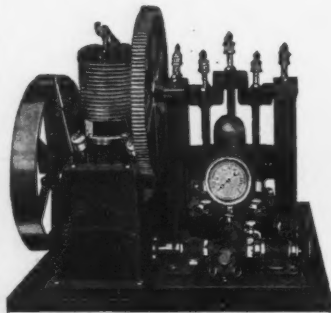
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NOVEMBER, 1910





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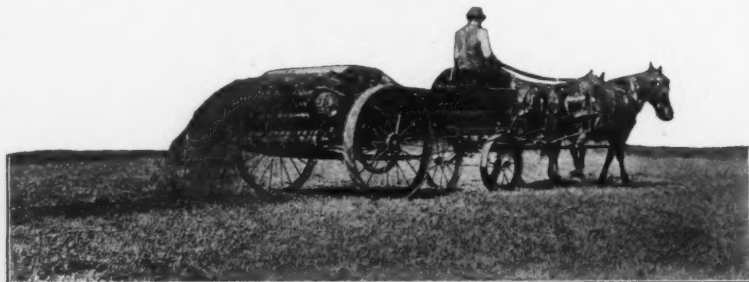
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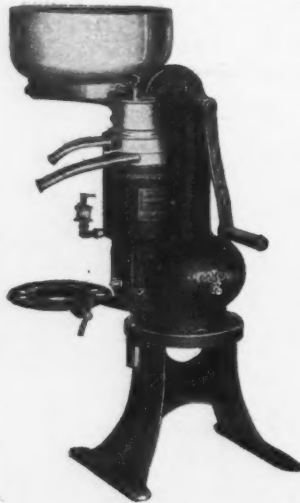
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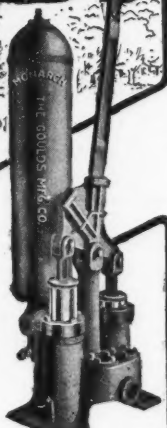
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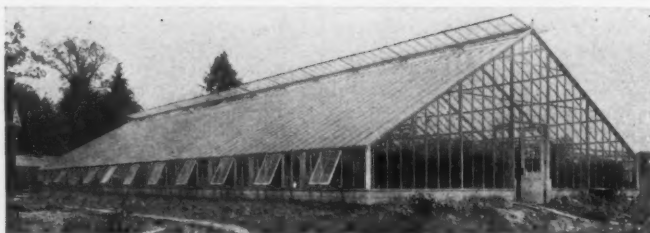
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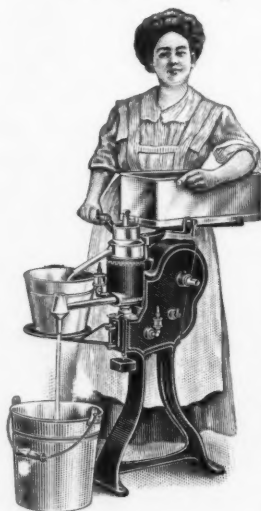
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Vol 8. No. 3.

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Dairy
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Issued at Ithaca, N. Y., monthly from July to November inclusive, and semi-monthly from December to June inclusive.

(Application for entry as second-class matter at the post office at Ithaca, N. Y., pending.)

These publications include the annual Register, for which a charge of twenty-five cents a copy is made, and the following publications, any one of which will be sent gratis and postfree on request:

General Circular of Information for prospective students,
Announcement of the College of Arts and Sciences,
Courses of Instruction in the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
Announcement of the College of Agriculture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
Announcement of the New York State Veterinary College,
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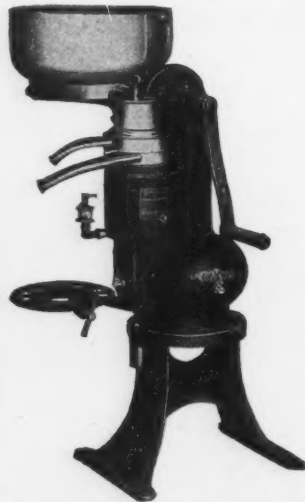


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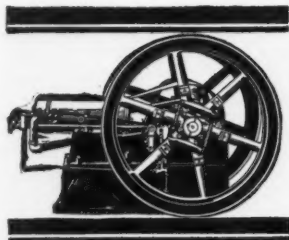
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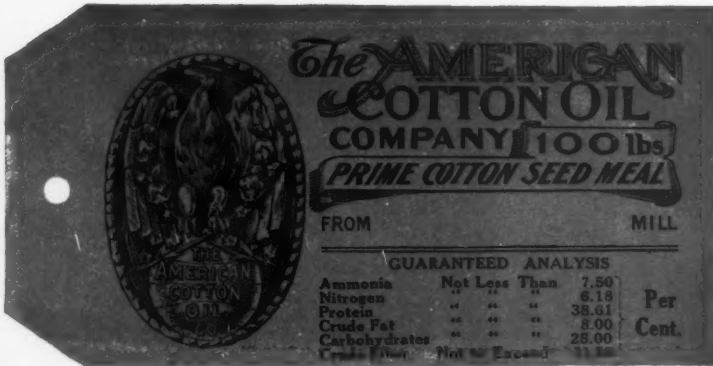
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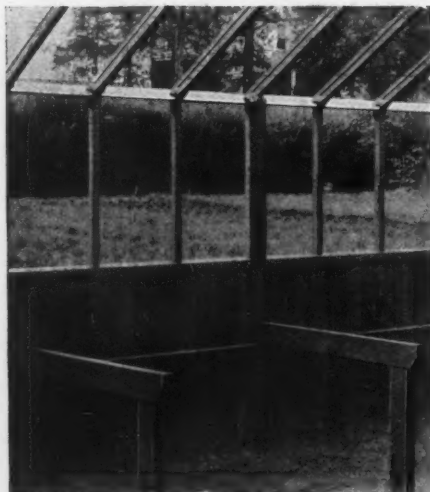
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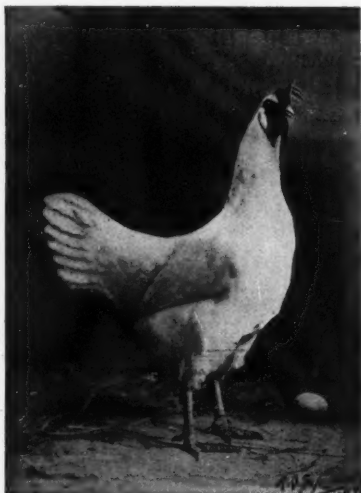
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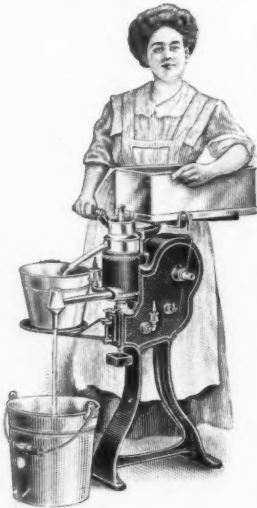
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The Cornell Countryman

JANUARY, 1911



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General Circular of Information for prospective students,
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Courses of Instruction in the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts,
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Announcement of the College of Law,
Announcement of the College of Agriculture,
Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
Announcement of the New York State Veterinary College,
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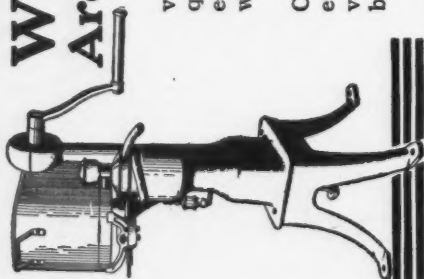
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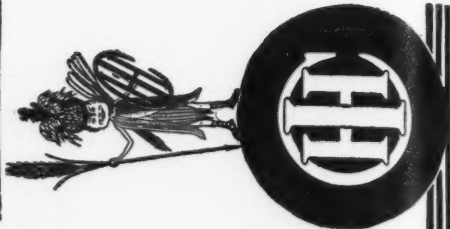
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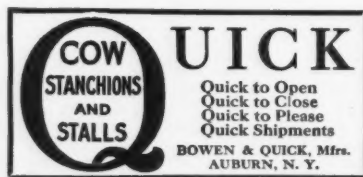
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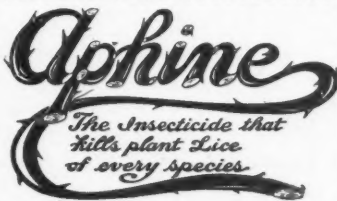
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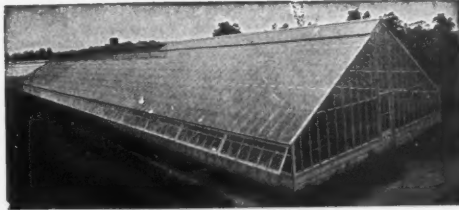
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You won't give over-capacity
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Send for our **free** book. It tells
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If you want cheap oil, our "CARBOLEINE" at 30c. per gallon is the equal of anything else.

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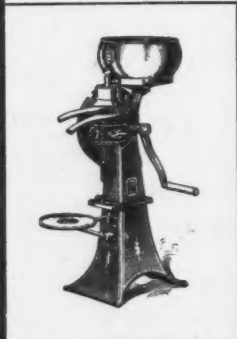
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Vol 8. No. 5.

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The Cornell Countryman

FEBRUARY, 1911



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Announcement of the College of Law,
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Announcement of the Medical College,
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In Bags	Sheep	Hog	Cattle
100 lbs.	\$ 1.50	\$ 1.50	\$ 1.35
500 lbs.	6.00	6.00	5.50

F. O. B. Chicago, Ill.

Pulverized Manure		Shredded	
In Bags	Sheep	Hog	Cattle
1,000 lbs.	\$11.00	\$11.00	\$ 9.50
2,000 lbs.	18.00	18.00	15.00

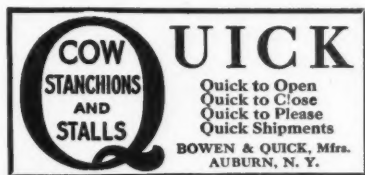
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But if you have never actually used this unusual cleaning and washing material do not be content with such impressions as you may have of it.

Impressions you know, unless the result of experience, may be wrong. And wrong impressions of Wyandotte Dairyman's Cleaner and Cleanser are like misunderstandings with your best friend—you cannot afford to have them. Get a sack of Wyandotte Dairyman's Cleaner and Cleanser from your dealer and use it wherever you have washing or cleaning to do. You will have more agreeable impressions of Wyandotte than you ever thought possible of any article.

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In every package

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This Cleaner has been awarded the highest prize wherever exhibited.

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I H C Spreaders Are Equally Good All Over



I H C Service Bureau

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A MANURE SPREADER is like a chain—as strong as its weakest part. Don't let one or two "exclusive features" influence you—don't be influenced by frills or fancies. Be sure that the spreader you buy is substantially built all over—without a weakness anywhere.

If you want to be sure of such a spreader—see that the I H C trade-mark is on the one you buy; then you will know that the material, the principle, and the construction are right. This trade-mark is backed by a company that can not afford to risk its reputation by offering inferior or inefficient machines.

I H C manure spreaders are of proved value—proved money-makers. Thousands of users testify to I H C superiority. Investigation brings to light the noticeable absence of troublesome gear wheels, the few levers, the perfect working apron, the wide range of feed, the light draft and the other advantages which have made I H C spreaders the choice of all who investigate thoroughly.

You will also note that there is an I H C spreader of a style and size to meet your particular requirements. **Corn King** and **Kemp 20th Century** Spreaders are of the return apron type — and **Cloverleaf** Spreaders have endless aprons. Each style is made in sizes, from 30 to 70 bushels capacity. Lime hoods for spreading lime, etc.—and drilling attachments for distributing manure in rows, are furnished on special order.

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LARGEST CAPACITIES
CLOSEST SKIMMING

The Only Practical Large Capacity Separators

Has more exclusive patented features of merit than all others—Has all the desirable points that can be put into a cream separator.

500 lbs., \$75.00	900 lbs., \$90.00
700 lbs., 80.00	1100 lbs., 100.00

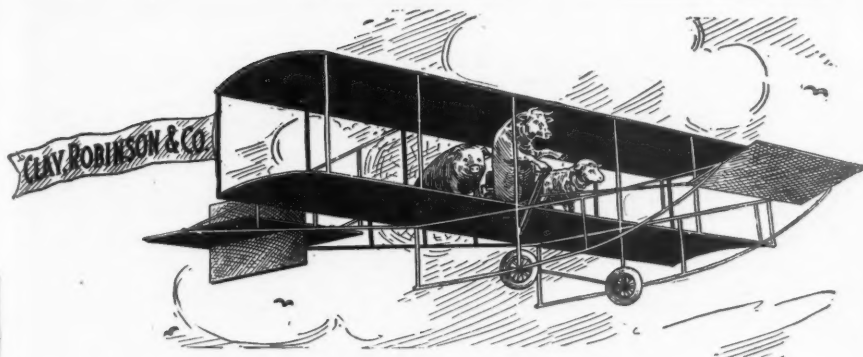
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The Co-op.
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UP TO THE TREES**

Throw the manure where it's needed most. There's only one spreader in the world that will spread way out on each side of the wheels—a strip 8½ feet wide from a 4-foot box—and that's a

**FEARLESS MANURE
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Think what this means to you? You can put manure where no other spreader can reach; you can manure two acres while the other fellow is doing one, and do it with even less effort and help.

Isn't this saving of time worth anything to you?

Then don't think of buying a manure spreader until you have learned all about the Fearless Circular Beater, Automatic Circular Rake, Endless Apron and Light Draft, and how they save you no end of trouble and time and money.

Now, don't lay this paper aside until you *send for our Free Catalog.*

You want the best spreader—the one that will do the work better and quicker for you and save its cost quickly. The catalog will show you *why* you need a Fearless and no other. Send *now.*

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Miscible, exceedingly fine, giving high sticking power. Contains not less than 15 per cent. Arsenic Oxide.

Its wide use in all the great fruit-growing districts proves our lead arsenate to be exactly what the orchardist wants.

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Eddy Reversible Sulky Plow

Like all Eddy Plows, this sulky plow is built for long dependable service—**simple, strong and durable.** Does satisfactory work in **any kind of soil**—wherever a team can go. A boy or girl can operate it and do better work than a man with walking plow. It turns all the furrows one way, doing away with dead furrows and ridges. Has **tilting seat** for side-hill work. Equipped with **foot trip** for lifting plows from furrow, so that driver has absolute control of the plow at all times and **both hands free** for handling team. Has a **wide wheel base.** Tongue is adjustable from seat by lever which controls width of furrow. Turns a furrow 3 to 9 inches deep, and from 12 to 14 inches wide. Plows can be furnished that will turn a furrow up to sixteen inches wide, if desired. An ordinary team can handle it easily.

Progressive farmers find that the **Eddy Reversible Sulky Plow** saves time and labor, and does **better work** than ordinary plows.

Write to-day for Catalog of Eddy Plows

W. EDDY PLOW CO.

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Eddy No. 400 Reversible Sulky Plow at work on farm of New York State College of Agriculture, Cornell University.

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The Cornell Countryman

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(Signed)

GEORGE A. DREW, CONN.

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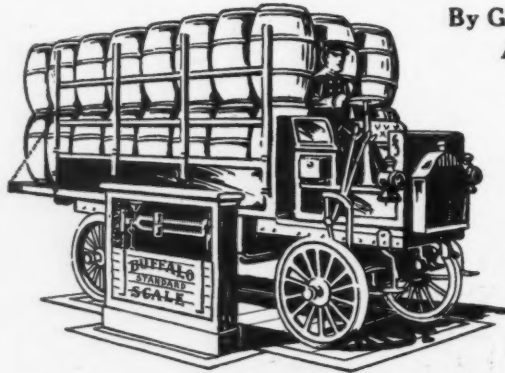
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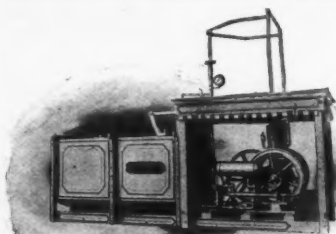
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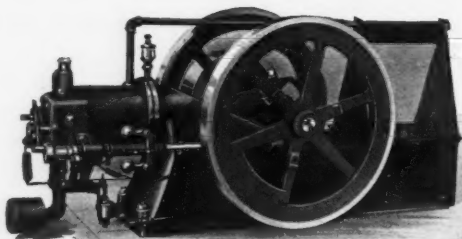
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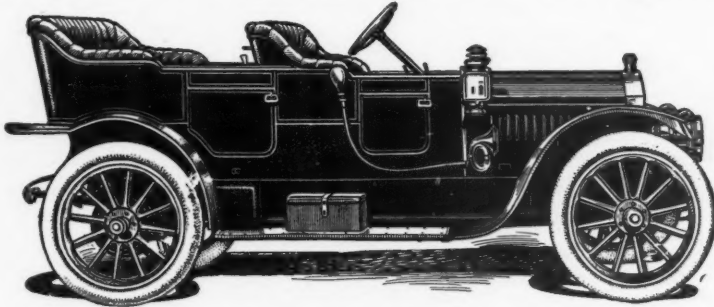
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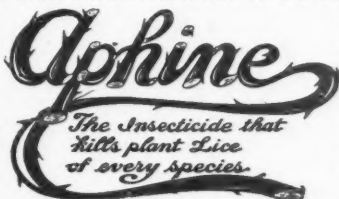
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
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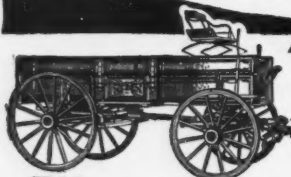
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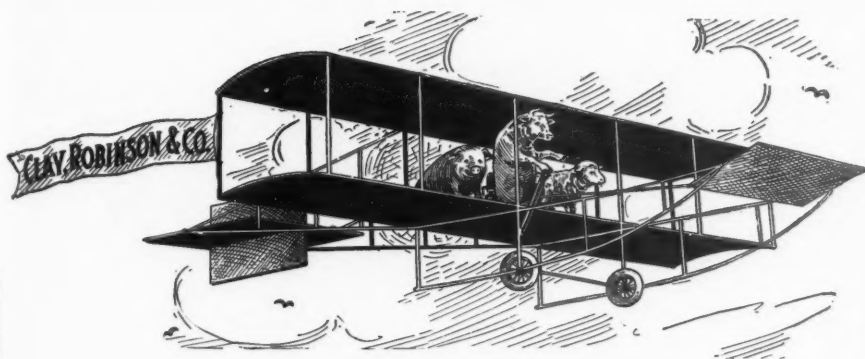
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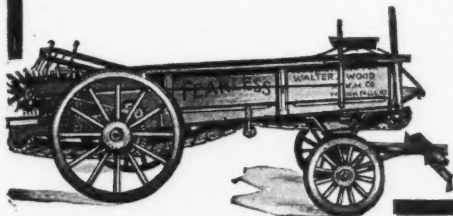
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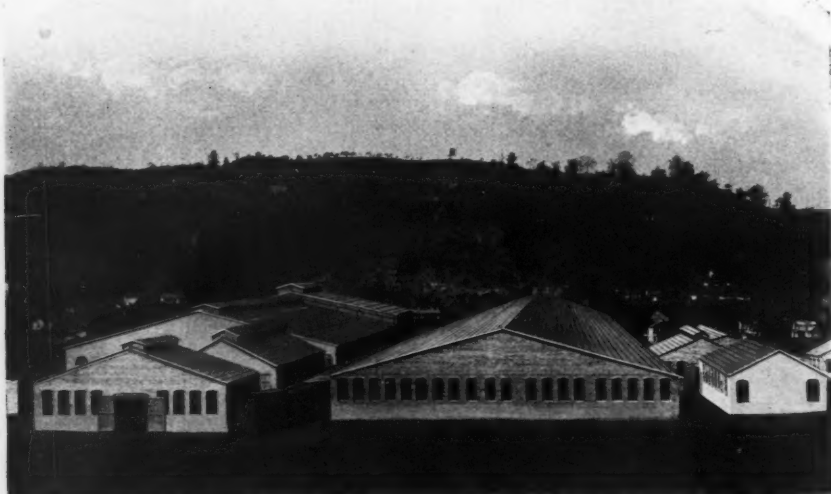
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TOTAL PHOSPHORIC ACID, 17.73 per cent. AVAILABLE PHOSPHORIC ACID, 15.48 per cent. (By Wagner's Standard Method) See Bulletin 127, page 16.

THOMAS PHOSPHATE POWDER ALSO CONTAINS 35 to 50 per cent of EFFECTIVE LIME, 15 to 17 per cent. of IRON and 3 to 6 per cent of MANGANESE.

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(BASIC SLAG PHOSPHATE)

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**A SUBSTITUTE
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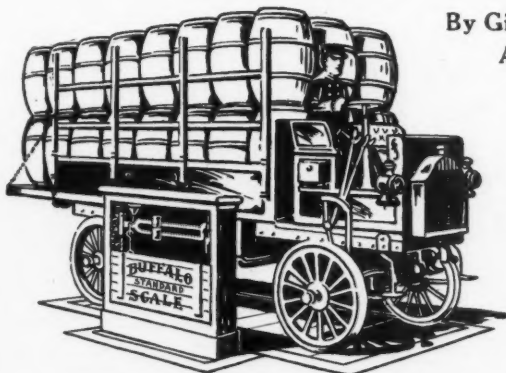
10 gal. keg making 2,000 to 5,000 gals. spray, delivered at any R. R. station in the United States for \$12.50. Prompt shipments. Every grower of fruits and vegetables should have our Report of wonderful results 1910.

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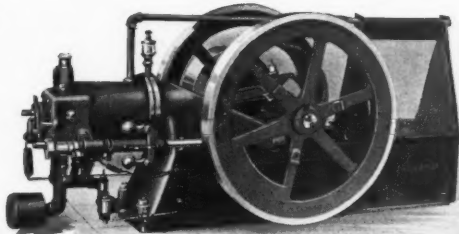
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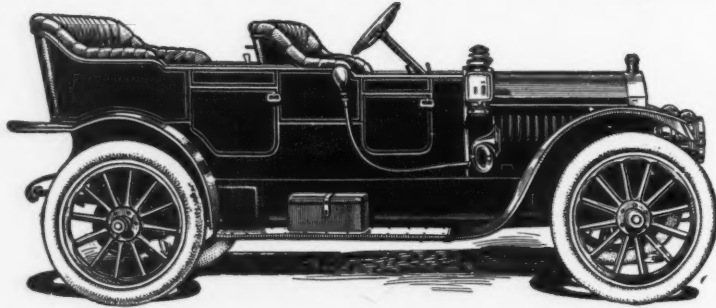
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It goes into the subject of sprayers and spraying mixtures very thoroughly. We'll be glad to mail it to you upon request.

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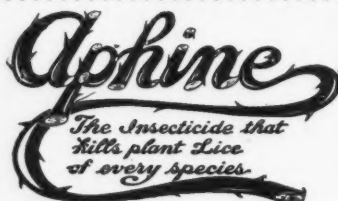
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100 lbs.	\$ 1.50	\$ 1.50	\$ 1.35	\$ 1.20
500 lbs.	6.00	6.00	5.50	5.00

F. O. B. Chicago, Ill.

In Bags	Pulverized Manure		Shredded	
	Sheep	Hog	Cattle	Cattle
1,000 lbs.	\$11.00	\$11.00	\$ 9.50	\$ 8.00
2,000 lbs.	18.00	18.00	15.00	14.00

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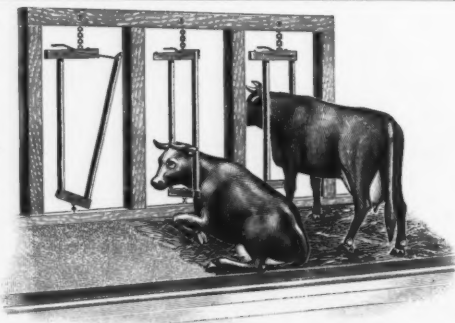
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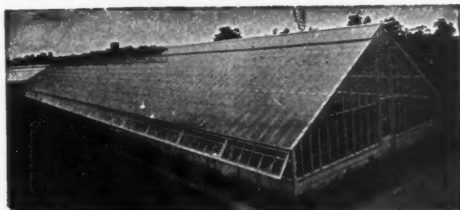
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You won't give over-capacity
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It supplies 10 nozzles at a pressure of 200 lbs. with safety valve blowing off, and this service can be increased without overtaxing the engine.

A complete spraying rig.

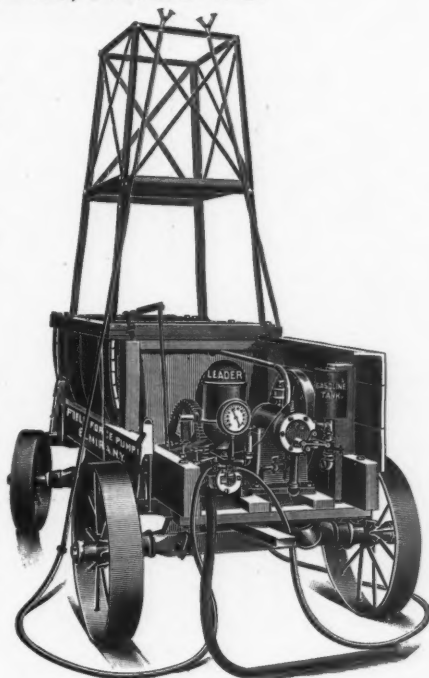
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It will refill the tank, saw wood, grind feed, run your repair shop, shell or clean your grain, run the cream separator or the churn, and is safe, simple and satisfactory.

We can furnish a Rotary Power Pump for filling the tank, to be run by a belt from the engine which will pump 25 gallons the minute.

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We make a full line of Barrel and Knap-sack Sprayers including the
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It's much harder to skim milk at 65 to 70 degrees than milk at 85 or 90. Some machines that will do fair work with milk at 90 degrees will get all clogged up with milk at 70. Remember that lots of times in the winter your milk will be nearer 65 than 85.

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APRIL, 1911



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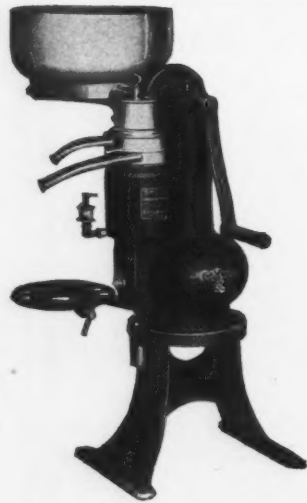


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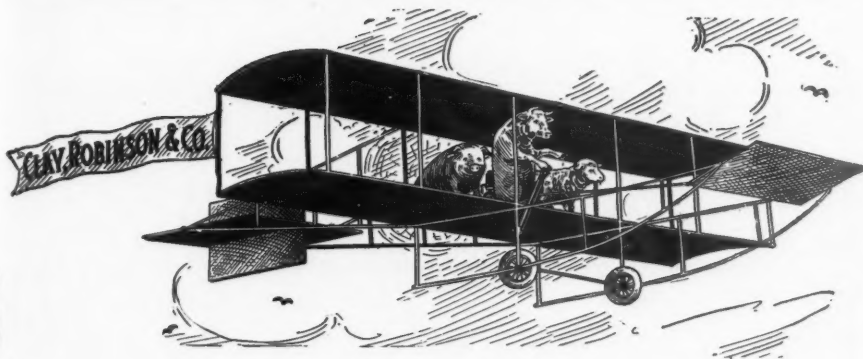
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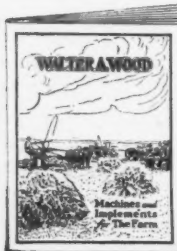
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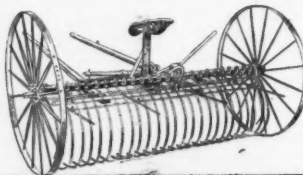
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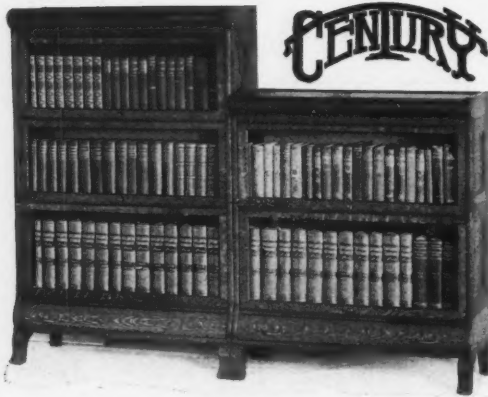
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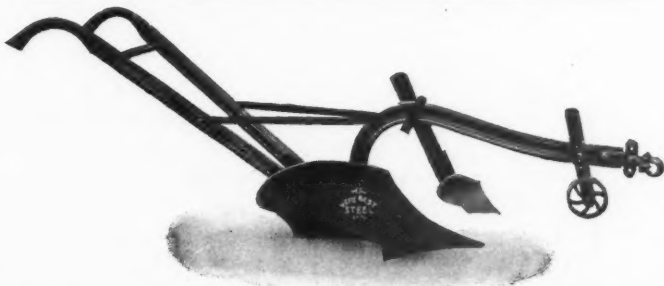


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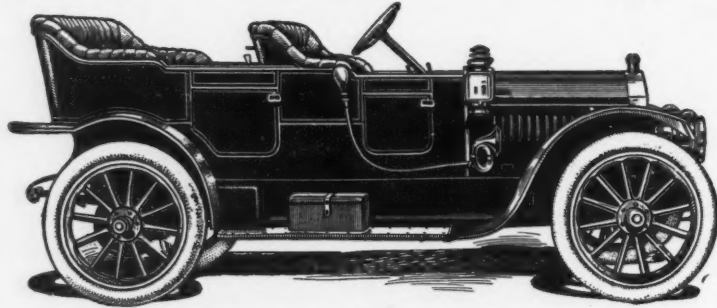
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25D Steel Mouldboard	7 X 14	110 lbs.
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THOMAS PHOSPHATE POWDER ALSO CONTAINS 35 to 50 per cent of EFFECTIVE LIME, 15 to 17 per cent. of IRON and 3 to 6 per cent of MANGANESE.

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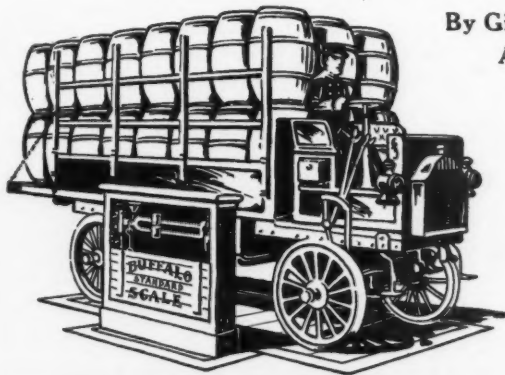
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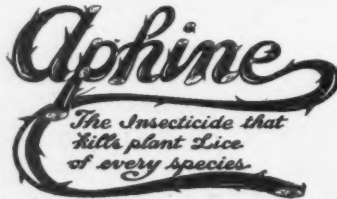
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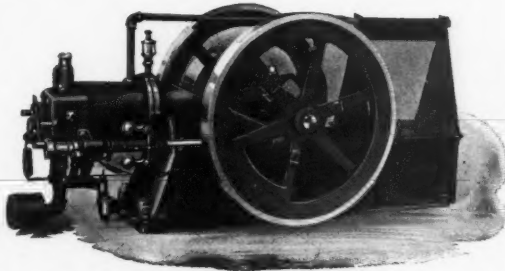
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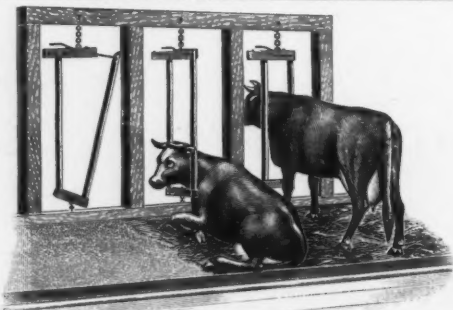
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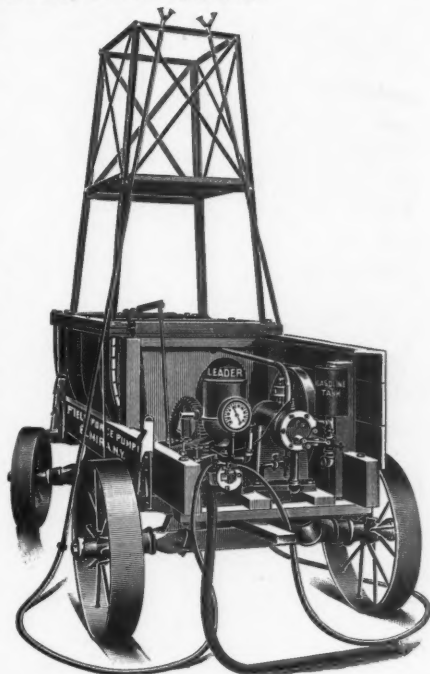
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Vol. 8. No. 8.

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The Cornell Countryman

MAY, 1911



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These publications include the annual Register, for which a charge of twenty-five cents a copy is made, and the following publications, any one of which will be sent gratis and postfree on request:

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Courses of Instruction in the College of Arts and Sciences,
Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts,
Announcement of the College of Civil Engineering,
Announcement of the College of Law,
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Announcement of the Medical College,
Announcement of the New York State College of Agriculture,
Announcement of the Winter Courses in the College of Agriculture,
Announcement of the New York State Veterinary College,
Announcement of the Graduate School,
Announcement of the Summer Session,
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Pamphlet on prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to

The Registrar of Cornell University

ITHACA, N. Y.

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L. H. BAILEY, Director.

The College of Agriculture is one of several co-ordinate colleges comprising Cornell University. The work of the College is of three general kinds: The regular teaching work of undergraduate and graduate grade; the experiment work; the extension work. The resident course of instruction falls in the following groups:

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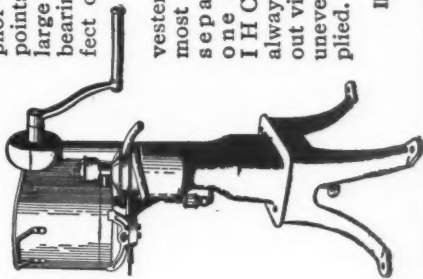
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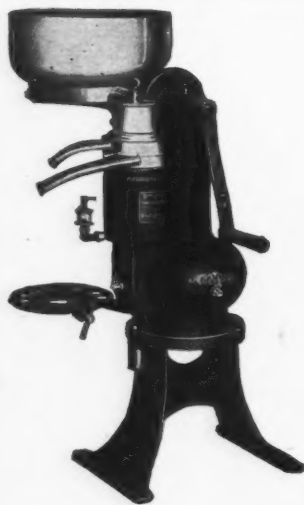
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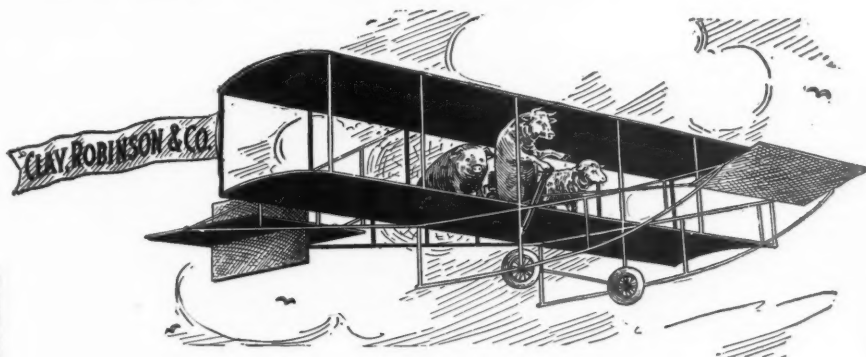
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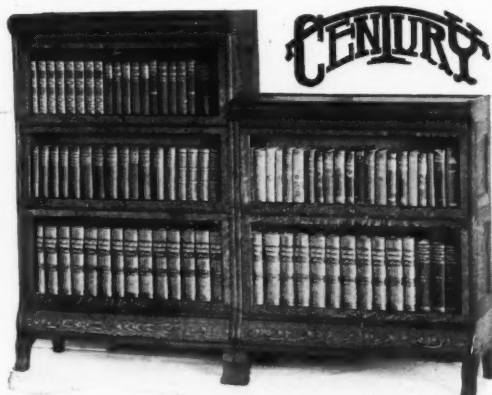
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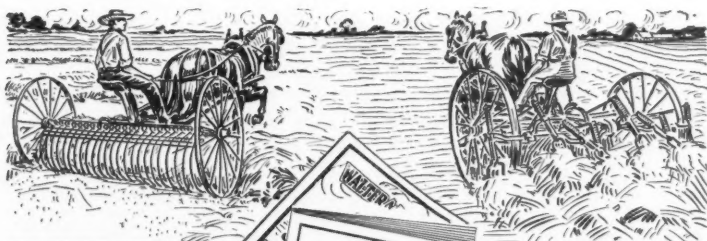
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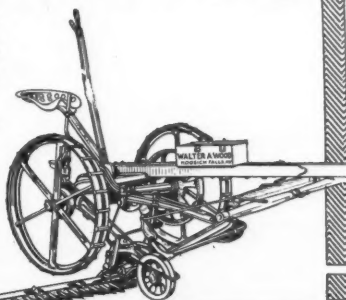
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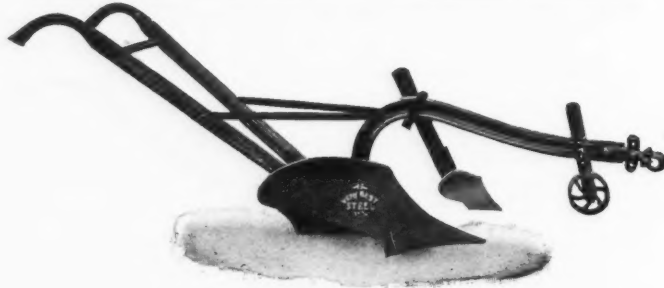


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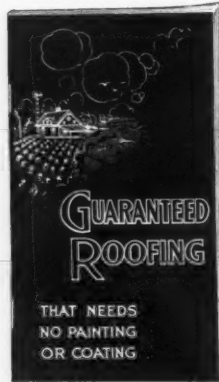
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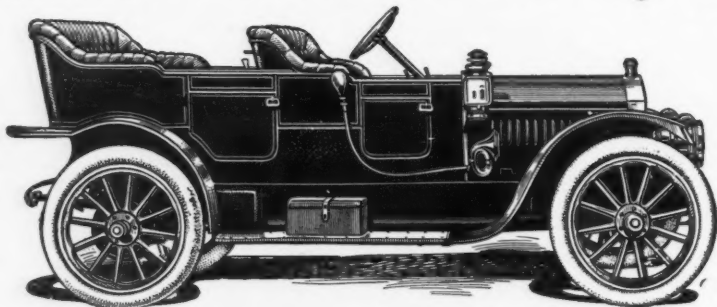
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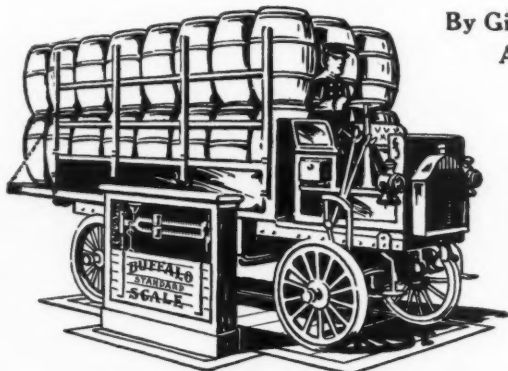
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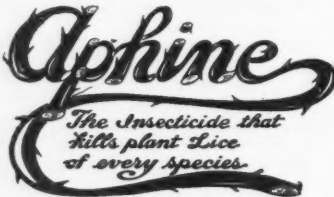
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GROWS BIG RED APPLES AND OTHER FRUITS

Why let the fruits of Oregon and California monopolize our best markets when fruit of **EQUALLY FINE APPEARANCE AND FAR BETTER QUALITY** can be **RAISED RIGHT HERE** if you **FEED YOUR TREES AND FEED THEM PROPERLY?**

During the past five years **GENUINE THOMAS PHOSPHATE POWDER** has proven its value. Used by the leading fruit growers it has given **high color, superior quality, healthy foliage and increased yields.** It has proven its positive action in encouraging and developing fruit buds. It has, in short, produced fruit that **ships better, looks better, tastes better and pays better** than fruit raised otherwise.

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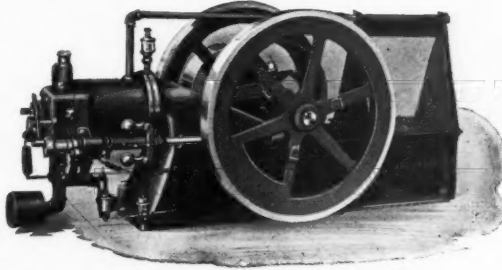
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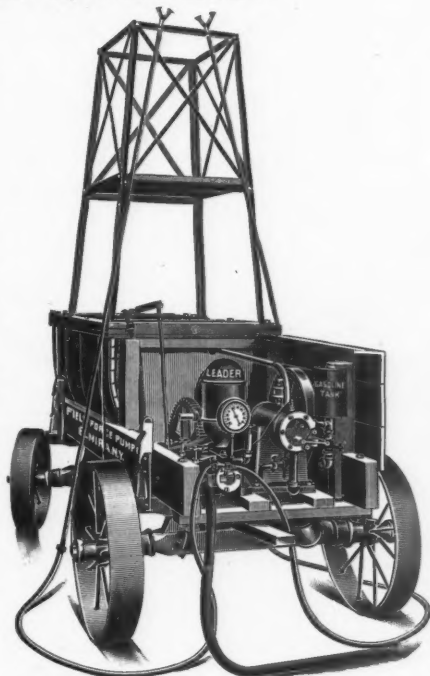
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Vol. 8. No. 9.

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JUNE, 1911



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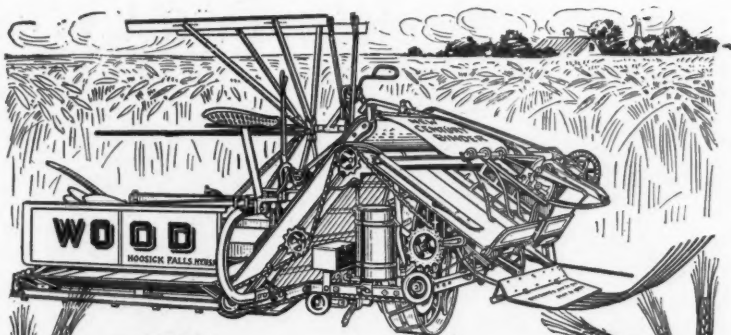
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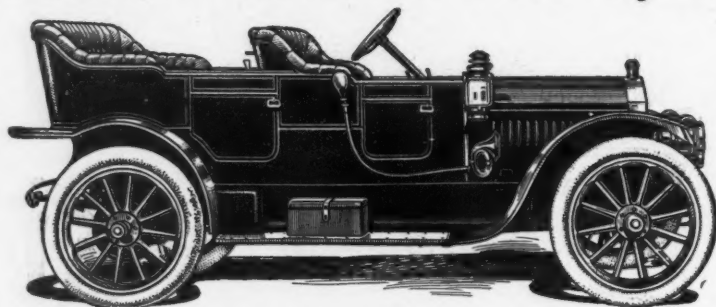
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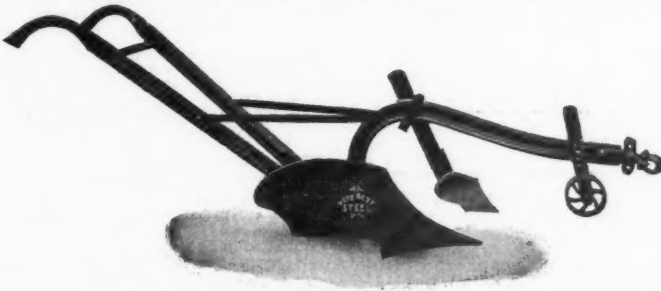
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THE NOS. 25D, 26D AND 25D-16 PLOWS

No plow equals this model for all-around work—it is popular everywhere. No other plow is so easily handled. It is built on graceful lines and is light of draft. Mouldboards are of highest grade soft-center steel, tempered by the Eddy process. Open-hearth steel beam; steel landside with chilled shoe.

The 25D is equipped with either soft-center or open-hearth mouldboard; the 26D with chilled mouldboard; the 25D-16 with soft center steel mouldboard only. The 25D-16 is a large two-horse or medium three-horse plow. These plows can be equipped with jointer and wheel, as shown in illustration, or with straight or rolling coulter if desired.

Number	Capacity	Weight
25D Steel Mouldboard	7 x 14	110 lbs.
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THOMAS PHOSPHATE POWDER ALSO CONTAINS 35 to 50 per cent of EFFECTIVE LIME, 15 to 17 per cent. of IRON and 3 to 6 per cent of MANGANESE.

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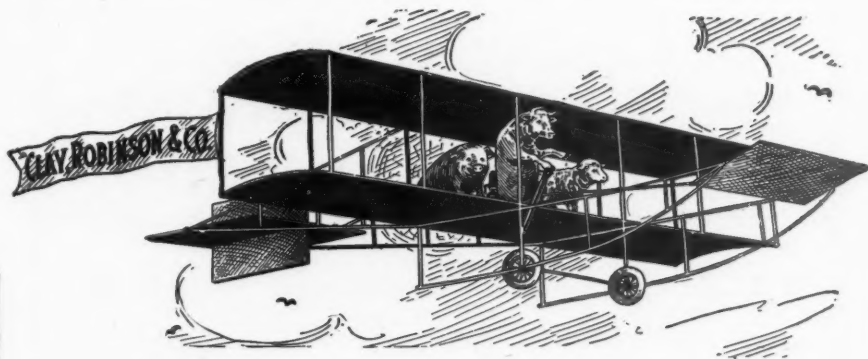
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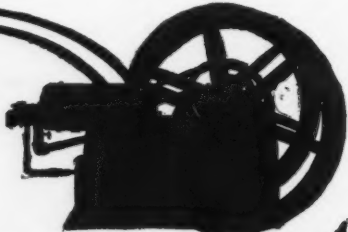


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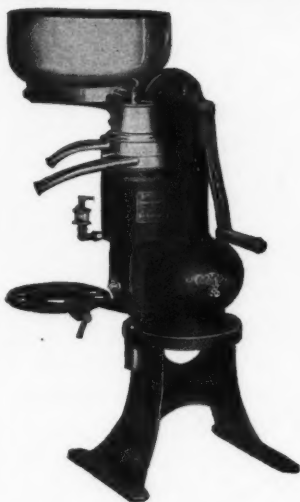
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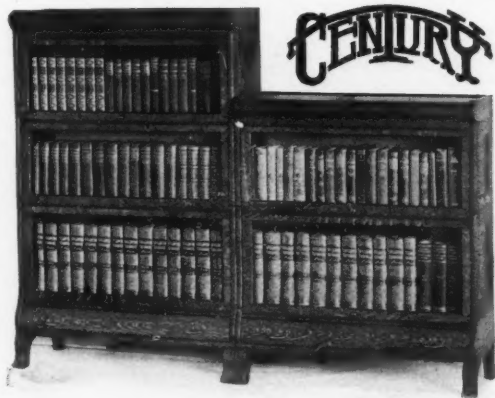
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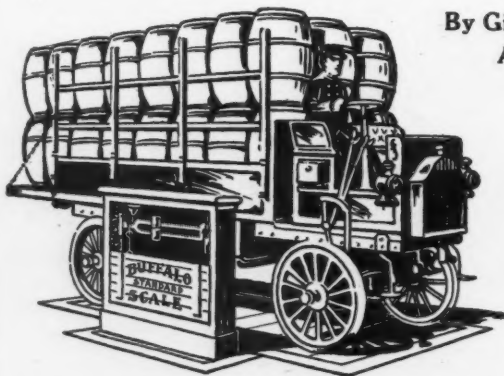
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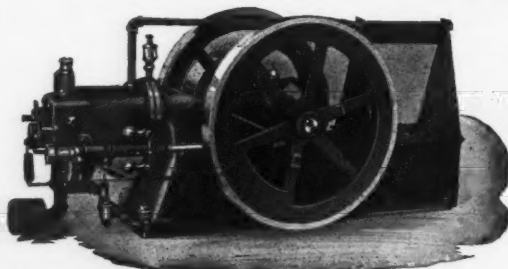
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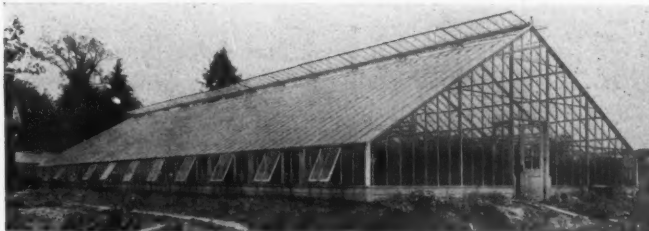
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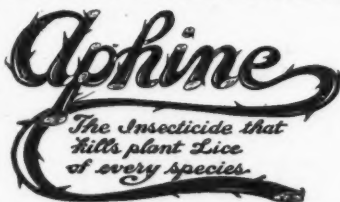
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COSTS NO MORE THAN THE OLD WAY

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Work Guaranteed

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Rented or sold on Easy Payments.  **"Songs of Cornell."** All the latest
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Victor Talking Machines, Records, etc.

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One Price Clothiers and Furnishers

Offer unusual advantages to students. Our Clothing is manufactured for
us to conform to the requirements of the college man by the best
makers in the country, and is sold at bottom prices. Same price
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Hats, Gloves, Shirts, Sweaters, Hosiery, Underwear, Slickers

in fact everything in furnishings in keeping with our high standard of Clothing.

"If not we make it right"

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Reliance Iron & Engine Co.

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Ag. Men to look up our new rebate system 5%. No prolonged dividends, but a definite rebate on every cash purchase.



This plan is in use at all our stores and will save you the price of many a book and article this fall.



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by CHRISTY ENGRAVING CO.

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Poultry Cuts

The ordinary half-tone engraving may be good enough for the poultry man who handles cheap stock, but cheap cuts never were and never will be of the slightest use to the man who wishes to do a first-class business in high-grade poultry.

We wish to call the attention of the readers of the CORNELL COUNTRYMAN to the accompanying cut. We have earned the reputation we enjoy of putting the finishing touch of Quality on the half-tone plates we make. Quality cuts sell the goods. Correspondence solicited.



Christy Engraving Co.

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THE LEADER GASOLINE SPRAYER

WITH 3 1-2 HORSE POWER, 4-CYCLE ENGINE.

It supplies 10 nozzles at a pressure of 200 lbs. with safety valve blowing off, and this service can be increased without overtaxing the engine.

A complete spraying rig.

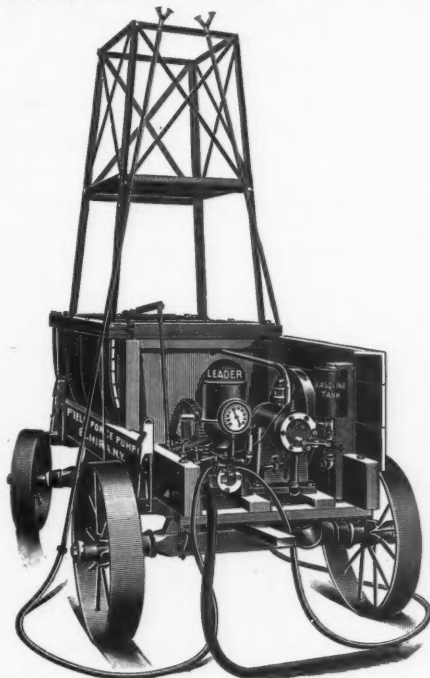
It will meet all your requirements.

It will refill the tank, saw wood, grind feed, run your repair shop, shell or clean your grain, run the cream separator or the churn, and is safe, simple and satisfactory.

We can furnish a Rotary Power Pump for filling the tank, to be run by a belt from the engine which will pump 25 gallons the minute.

The regular outfit includes the gasoline, pump feed, with tank in base of engine.

We make a full line of Barrel and Knap-sack Sprayers including the GARFIELD and EMPIRE KING.



NEW MODEL AROOSTOOK

SIX ROW HIGH PRESSURE POTATO SPRAYER, (Entirely Automatic.)



Tank holds 100 gallons, has double brass cylinder pump, all brass working parts, mechanical automatic agitator with automatic brushes for keeping strainers clean, stout wheels fifty inches in diameter.

This machine sprays forty acres of Potatoes, Cotton, Tobacco or Vegetables for a day's work and without waste of Liquid.

FIELD FORCE PUMP CO., ELMIRA, N. Y.

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Cream Separator

SAVES ITS COST EVERY YEAR

Occasionally the intending buyer of a cream separator who has but a small amount of ready cash to invest is tempted to put his money into one of the so-called "cheap" machines which are being largely advertised.



Why pay your hard earned money for a "cheap" trashy machine when you can buy a reliable DE LAVAL upon such liberal terms that

It will more than earn

its cost while you are

paying for it.

When you buy a De LAVAL you have positive assurance that your machine will be good for at least twenty years of service, during which time it will save every possible dollar for you and earn its original cost over and over again.

If you purchase the so called "cheap" separator you must pay cash in advance and then take a chance of the machine becoming worthless after a year or two of use to say nothing of the cream it will waste while it does last—all of which means that you have virtually thrown away the money invested in the cheap separator and wasted your time, labor and product in the bargain.

The DE LAVAL separator pays for itself. It runs easier, skims cleaner and lasts longer than any other cream separator.

Be sure to see the local DE LAVAL agent and try a DE LAVAL before you buy any cream separator.

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